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ORIGINAL COMMUNICATIONS.

The Improvement of Agriculture. By H. COLMAN. [For the New-York Farmer, and American Gardener's Magzine.]

Every intelligent man fully appreciates the value of facts in any practical science or art. Mere theory is of little value compared with practical results. This is especially true in regard to agriculture, to the improvement of which, mere theory has contributed very little, and facts and experiments are mainly to be relied upon. In respect to all the operations of nature, there is a point where human sagacity and penetration stop; and where, in the present condition of the human understanding, further inquiry seems to be wholly in vain. This is true in those matters, which appear most cognizable to the observation, which are, in fact, nearest to us, within ourselves, and the subjects of our own personal consciousness, as well as in matters more distant and farther removed from scrutiny. The connexion between mind and matter, between the will and the muscles; the composition of the flesh, the bones, and the blood; even the simplest processes of digestion and nutrition, are as deeply hidden in obscurity as in the first hour of man's creation; and in respect to them all attempts at solution, with whatever confidence they may have been put forth, have hitherto proved perfectly furtile. So, too, in the vegetable world; how the seed germinates, how the loaf expands, how the fruit is formed, how the coloring and taste are thrown in, are matters, the explanation of which, the most acute, the most penetrating, the most philosophical inquirer has not even approached; and in the presence of which, human sagacity is humbled, and compelled to acknowledge its impotence. The operation of manures is one of these deep mysteries. The use of gypsum or Plaister of Paris is a matter which remains entirely in the dark, so far as respects the mode of its operation; and it is equally so with the operation of water upon vegetation, and of common barn-yard manure. Whether they are mere stimulants or condiments to vegetation, whether they are mere excitements to the dormant powers of the seed or plant, or serve as the necessary food of vegetables, to be taken up and carried into their circulations, and made a constituent part of them; and if so, how they are reduced, divided, resolved, subdivided, prepared, aerialized, taken up, changed, applied, are matters which hitherto have utterly mocked the researches and inquiries of man; and of the knowledge of which, with his present faculties, he seems wholly incapable.

In these matters, facts are all that we can rely upon, and the rules deduced from the exact observation of facts, those only which may safely guide us. This the uncommon sense of mankind suggests;—and this has created the strong prejudice, which prevails against what is called book farming. The plainest men see at once that in some matters the wisest are capable of knowing no more than themselves; and they look therefore with a degree of impatience and contempt upon those theories, which attempt confidently to solve the unsearchable mysteries of nature, and upon experiments founded wholly upon such theories. These kinds of speculations, it must be admitted, have abounded in works of agriculture; but it is plain that the press, if it sometimes promulgates theories, must be the best register of facts. The record of a fact in print is far more likely to be exact than when orally communicated, and those who thus communicate it in fixed characters, may be expected to feel a greater responsibility, for the truth and accuracy of their statements, when presented in a sensible form so as to be critically examined. Agricultural publications, therefore, as far as they record facts and experiments, are of the highest utility. Theoretical speculations are often exceedingly ingenious and plausible; and they may serve to excite inquiries into matters of fact, in order to ascertain how far they are sustained by them: but they often lead us wrong; and induce us to misinterpret or pervert facts, that we may make them conform to our own preconceived opinions, which we are always strongly desirous of maintaining. Facts, however, are far more valuable than any theories. What they teach, if rightly understood and applied, cannot fail to lead us right.

We may err, however, when even most anxious to make our inferences only from facts, and to learn the truths which they teach, and to follow the rules which they suggest. Facts are not always observed with care. The qualifying circumstances under which they occur, are not always properly noted. Inferences are oftentimes hastily made. Important conclusions are sometimes drawn from a single fact, which other facts and a more extended observation might fail to confirm. These and a variety of circumstances contribute to render the knowledge, which we presume oftentimes is most strongly confirmed, at least questionable; and should make us willing to revise even our most favorite conclusions, should there be reason to revise them; and make us eager to embrace any new light, which may approach us of its own accord, or be accessible to our pursuit.

The progress of knowledge in any great art or science is comparatively slow; and new and important discoveries are not to be often looked for. The arts have attained to the degree of perfection, which they now hold, by a very gradual process. The invention of the mariner's compass, the great principle of gravitation, and the circulation of the blood, mark important eras in human history. Many of the discoveries of modern times, in the mathematical, physical, and intellectual departments of science, are of scarcely less importance; and the numerous facilities and inventions for the prosecution of our scientific inquiries, continually multiplying among us, afford great encouragement to our efforts to extend the dominion of true and useful knowledge. After all, much which we call knowledge, will hereafter prove to be unfounded; and as we regard the ages which have preceded us, so successive generations will look back upon our imperfect attainments, perhaps only to admire our self-conceit and our ignorance.

These discursive remarks apply with peculiar force to the great art and science of agriculture. This greatest of all arts, this first and most important of all sciences, forms the absolute condition of human subsistence, and the basis of social welfare and prosperity. Vast improvements are going on in it; and the progress which has been made, since man first turned up the ground, and deposited his seed, with a rude stick or stone, to the present improved implements of the intelligent husbandman, is indeed immense. But we have reason to believe that the science is yet comparatively in its infancy. The capacity of the earth to yield has not yet been fully tested. The extent, to which cultivation may be successfully carried, is not yet ascertained. The powers and proper application of manures are hardly approached. Who, a few years since, would have even dreampt of the miraculous operations and effects of gypsum; and yet is there any reason to doubt

that in the vast storehouse of nature there may be other and innumerable substances equally efficient in exciting and unfolding the dormant powers of vegetation?

Here, then, in the wide and boundless field before us, there is abundant room for exertion, for experiment, observation, and inquiry; and motives as powerful as the room is ample. Knowledge is the accumulation of facts. Facts are all important. Let every intelligent and public spirited husbandman, from motives of humanity in the most enlarged sense of the term, as well as of patriotism, be ready to contribute his part in supplying facts occurring within his own immediate observation and experience. The most humble and minute details are important; indeed, the intelligent and discriminating mind will often discover that results depend upon, and are essentially effected by, little circumstances which are likely ever to escape observation. It is by this joint contribution, this constant accumulation of well ascertained and carefully observed facts, that agriculture as a science and an art may be expected rapidly to advance; and with its advance, and inseperably dependant upon it, the means of human subsistence will be increased, the comforts of life multiplied; and the condition of men in every respect elevated and improved. H. C.

October 15, 1835.

To our Agriculturalists. By W. P. [For the New-York Farmer, and American Gardener's Magazine.]

Foreigners, the least conversant with the grades of society in Europe, are much surprised at the low social estimation of the agriculturalists of this country. In every part of the civilized world, excepting this, they are ranked among the foremost in public opinion; here, every petty shopkeeper is considered their superior. There are many exceptions to this rule, but as a class it will be admitted to be correct.

There must be something radically wrong in the self-estimation of our farmers, or such an inverted state of their esteemed condition could not exist. To endeavor to induce them to make a fair estimate of themselves, is the object of this essay. I will attempt to show them why, as a class, they ought to rank at least as high as any other, and then point out to them why they now rank so much lower in public opinion than those of the same class in other countries. I have no wish to increase their pride, for man has nothing to be proud of; besides, pride, as the term is generally understood, is a mean, grovelling quality, exactly adverse to a fair appreciation of ourselves in our social capacity.

The fact, that the cultivators of the soil are the primary producers of the whole wealth of a country, is of itself sufficient proof of their superiority as a class. This fact will no doubt be denied by many of our dealers and shopmen, who are incapable of tracing effects to causes, and who, wrapt in self-conceit, have assumed a station that does not belong to them. The fact, however, can be easily demonstrated, which I shall endeavor to do in as succinct and plain a manner as possible.

We have about two millions of families, including farm laborers, employed in agricultural and horticultural pursuits. This estimate may be considered excessive, for there may be less than two thirds of our whole population engaged in cultivating the soil; but however much beyond the reality, it alters the conclusion to be drawn from the premises only in diminishing the amount put in circulation annually, not in its inductive facts. We will suppose that the land under cultivation affords no surplus beyond the support, in the first necessaries of life, to those employed in cultivating it. It is evident, in this case, that the farmers having nothing to sell, would be unable to purchase any thing; that every individual of our population would be compelled to cultivate the soil to obtain an existence, for there would be neither sellers nor purchasers. We will further suppose that the average surplus of each family, beyond their own existence, to be fifty dollars per annum, and that the whole of this were wanting to supply agricultural instruments. The amount to be expended would now be one hundred millions of dollars per annum, which would put into operation a given number of workmen in wood and iron, as well as a small number of dealers to facilitate the receiving and executing of orders. Trade has now commenced, but never could have started but for the farmers' surplus. If the average surplus of each agricultural family should be one thousand dollars, an estimate probably very near the truth, and the greater portion of this surplus be expended in the usual variety of objects which go to promote the comfort and luxury of families, it is evident, that in addition to the workers in wood and iron, there would be put in operation builders, cabinet makers, clothiers, and a thousand other sources of industry.

If, when these agents have accumulated capital, and by this means extended their operations so as to meet the increasing demand of the agriculturalists, shall pride themselves on a factitious superiority, forgetting in toto the source of their wealth, ought they not to be pitied rather than admired by the intelligent part of community?

The amount put in circulation by our farmers, on the last estimate, would be two thousand millions of dollars per annum, and the number of workmen and agents employed to execute orders would be vastly increased. The whole capital accumulated by the country is exactly the amount saved out of this surplus, by the farmers, and the agents and workmen employed by them.

That our farmers should have a surplus of two thousand millions of dollars per annum, over and above feeding their families, would appear, at first sight, to be much overrated; but after deducting four hundred millions for the wages of workmen, and three hundred for buying and planting new farms, building houses and barns, buying new instruments of agriculture and repairing old ones, we shall find that it leaves but about eighty-five dollars per head for our whole population for clothing, furnishing, and other necessaries and comforts sought by those who can afford to purchase them. It should also be recollected that five millions of our population derive all their necessaries, comforts, and luxuries, from this surplus, and that the annual accumulation of capital is a product of that excess.

So long as there is land in a country of first and second rate qualities, for the creation of new farms, so long can this primary source of wealth be extended. There is also ample room in this country for a great extension from the land now under cultivation, as at least one third more product could be raised from it than is now produced; but as this consummation cannot possibly take place until interest of money and wages are lower, or new labor saving machines shall be invented, we must hope rather than expect to see it realized in our day.

Manufacturers, dealers, and shopmen, and, in fact, all who are not laboring on farms, derive their whole support from this agricultural surplus. The capital, accumulated by those agents who buy and sell, whether merchants, shopkeepers, or dealers in any commodity, being savings from the varied circulation of said product, the farmers ought surely to be entitled to their highest consideration.

This surplus is by no means stationary, and the prosperity of some years, as well as the depression of others, are the results, in the greater number of instances, of the greater or smaller surpluses. If the surplus one year should be twelve hundred millions of dollars, another seventeen hundred millions, and another twenty-two hundred, it would be easy to account for the elevations and depressions in the business community of the country. In fact, the variations which annually take place in these surpluses is the only true barometer of a country's prosperity.

When merchants, manufaturers, and dealers in a country are operating with large masses of capital, the accumulation of many years, concentrated in cities and towns, they lose sight altogether of the original source of wealth. And where the right of primogeniture does not exist, as in this country, to enable agriculturalists to concentrate their property in the heads of families, the other classes will, apparently, be much richer, and claim a superiority. Their riches, however, is only *apparent*; for the far greater portion of wealth in every country must ever remain with the owners of the soil. Much of the capital wielded by dealers is altogether fictitious, being predicated on credit, and a considerable share of their more solid capital is borrowed from the savings of property owners.

Let me ask our farmers why it is, with so many solid claims to superiority, that as a class they tacitly acknowledge themselves inferior to those who are their dependents? I need bring forward but one circumstance to prove the fact. When our farmers have a son they consider more than usually talented, do they not bestow a better education on him, with a view to settle him with some merchant or dealer in our cities or towns, and this with the fear-

ful odds against them of his being ruined in pocket, mind, and body, as is the fatal issue with three fourths of the whole number? This is plainly acknowledging that it requires more talent and a better education to make a dealer and shopman than it does to make a farmer, and this depreciated view of their own condition is the main cause of their being undervalued by the community in general.

There is no business or profession, in the whole circle of human pursuits, that requires more solid talent to execute well than that of cultivating the soil, and there is no class of our citizens whose education is so generally neglected. It is too generally considered that to learn to plough, harrow, sow, drill, and plant; to harvest well when crops are ripe, and sell when ready for market, are all the qualities necessary for a farmer, with the addition of a little cyphering and writing. These, it is true, are necessary qualifications for every man who has the management of a farm; but they are by no means all that are requisite to make the pursuit yield its greatest degree of profit, and sufficiently interesting to attach the most enterprising and talented of its sons to the calling. If the owners of the soil are desirous of acquiring wealth, and at the same time that degree of respectability which will make them respect themselves as a class, they must acquire far more knowledge than the mere drudgery of a farm. They should know practically how to perform every branch of labor, in order to understand when their workmen do them justice; but the pursuit must indeed be miserably unproductive and uninviting if the owner of the estate cannot make more by systematizing his business, and superintending the carrying out of the system, than by personal labor. They should understand mensuration sufficiently to be able to calculate the quantity of land after the chain has been run; the advantages of draining, with the most effective and most economical way of operating; the properties of different soils, including a knowledge of what seeds and plants are most productive in each, with a critical judgment of the manures or composts best adapted to different qualities of soil; sufficient of botany to enable them to judge of seeds, plants, and fruit trees, with the best mode of producing them in the greatest abundance and in the highest degree of perfection.

It will not be denied that to acquire such knowledge would be highly advantageous to our agriculturalists, and not only to them as a class, but to the general community, for the average of the farming surplus would become so much larger as to materially benefit the whole mass. But, say they, how is this knowledge to be acquired? neither our common schools, academies, nor colleges, give any such instruction, therefore we have not the means of acquiring it. This objection is too true, and is a truth highly disgraceful to the enlightened age in which we live. The means of acquiring an agricultural education ought immediately to be put within the reach of this our most valuable class of citizens. In every college there are professorships for physic, law, and divinity, but none for that class on which our prosperity and very existence depends. Agricultural schools, academies, and colleges, with experimental farms attached to each, and with such professors as are requisite for the scientific departments, cannot be too soon established. The expense of such establishments would be repaid a hundred fold during the existence of the rising generation. A farmer should learn arithmetic, mensuration, agricultural chemistry, mineralogy, geology, and the physiology of seeds, plants, trees, and animals. A certain portion of his time should be appropriated to acquiring scientific knowledge, the remainder to practical operations of scientific principles. The expense of such an education should be as moderate as possible, particularly in the commencement so low, as to induce those who have but little to spare for education, to send their sons to such establishments, in preference to any others, on the score of expense alone.

With such an education, our farmers, instead of looking to other pursuits for their most talented sons, would feel it a degradation to place them any where but on the soil. Their sons, too, finding agriculture the most exalted of human employments, would be proud of their calling. That time of the year in which they are most unemployed, in place of hanging heavy on their hands, would be appropriated to improving their minds. They would as a class stand boldly prominent in the front ranks of society, and instead of any feeling of inferiority, as is now too much the case, would be able justly to consider themselves on a perfect equality with the best of any class; and that ignorant flippancy they now so much admire in others, would be found hollow and disgustingly nauseous. Politically they would become truly independent, and in place of being the tools of designing political knaves, they would have intelligence to enable them to think justly on every political subject, and manhood to back their opinion. But the most exalted of all considerations would be the effect on their moral condition individually. They would not only be able to appreciate themselves and their pursuit fairly, as a class of the human family, but in the investigation of the wonderful arrangement in the order of nature, they would feel that man was a being of exceedingly limited powers, that his utmost scope was as nothing in the presence of Him whose infinite mind had arranged, and whose infinite power had executed the wonderful works of creation. In possession of a physiological knowledge of the construction of seeds, plants, and trees, with the adaptation of soils to their growth and maturity, their contemplations would open to them a nearer approximation to the Divine Mind, and whether in the field or their chambers, they would enjoy this greatest and most durable of all sources of human happiness, that they were never "less alone than when alone." W. P.

W. P. will not leave the subject, we trust, which he seems so well to understand, with a single communication. Our columns will always be open to such communications.—[Prop. N. Y. F.]

Sheep Husbandry. By H. C. [For the New-York Farmer, and American Gardener's Magazine.]

In my communication to the last No. of the New-York Farmer, I referred to an account of a sheep establishment, politely furnished me by a very intelligent and experienced shepherd, Leonard Jarvis, Esq., of Cleremont, N. H., as accidentally mislaid. It has since come to hand, and I have the pleasure of presenting it to my agricultural friends, to whom it will be interesting.

Cleremont, N. H., August 23, 1835.

Rev. H. Colman: Dear Sir,—My avocations have been so pressing that until this moment I have not been able to communicate, as you requested me, some remarks upon my sheep and their treatment. Though I have been a shepherd 30 years, with a flock seldom ever less than 1000, more frequently 2000, I am still somewhat undecided what description of wool can be grown most profitably, and whether carefully breeding in and in, or judiciously crossing, produces the greatest improvement.

I commenced growing fine wool with a considerable number of the imported Paular and Escurial stock, then considered as the best stock in Spain, which flock I have kept to this day pure and unmixed, and at the same time, by crossing the two flocks, have a third flock, combining generally the properties of both flocks, but occasionally showing the characteristics of one of them. At the introduction of the Saxons, I procured some valuable bucks, and by crossing them with pure Merinos, acquired a fourth flock, and consequently have had, for the last ten years, four distinct flocks, viz. Paular, Escurial, Paular and Escurial mixed, and Saxon united with Merino. These four flocks have acquired great perfection by my unremitted attention to the selection of breeders, the Merino at this time carrying a much finer fleece than in 1810, as is apparent by contrasting the present clips with wool shorn in that year. There is very little difference in the fineness of my Saxon and Escurial fleeces; these last are somewhat heavier, with a staple more elastic. The Escurial has a greater resemblance than any other Merinos, both in form and fleece, to the Saxons that I have seen, and is probably the Spanish flock from which the most approved Saxons originated. The Paulars are more compact in form, have heavier fleeces, and are constitutionally the most hardy of all the Merino race. I omitted to say that I had also, when I begun to grow fine wool, three other pure Merino flocks, viz. the Nigretta, Equiroz, and Montarco; but after a few years experience, I gave a decided preference to the Paular and Escurial, and discarded the others. You have now a concise description of my kinds of sheep; and I will say a word or two as to their general management.

I usually commence with dry fodder by the middle of November, and discontinue by the 5th of May; generally, however, for the first and last fifteen days, giving no hay, unless the ground should be covered, but feeding about half a gill of Indian corn

to the sheep twice a day. As far as my experience extends, a ton of *good* hay will suffice for ten sheep, with the above quantity of grain. They are fed from racks in the yard, and have sheds to retire to at will. I have fed under cover, but believe that it tends to diminish the appetite, and injure the constitution. They are kept in separate yards, in number from 50 to 100, taking care to keep those of about the same degree of strength by themselves; and have running water, though, when the ground is covered with snow, I think they do well without it. I allow about four bushels of salt to the 100 sheep, the greater part of which is consumed when the sheep are at grass. My bucks run with the ewes from the 1st to the 10th of December, allowing three to the 100. The number of lambs reared depends much upon the season; 60 lambs from the 100 ewes may be the average from flocks in quality like mine; from coarser flocks the return is greater. The ewes are not permitted to receive the buck till after they are two years old; and I prefer bucks from two years old to four.

These few facts will probably afford you little or no information; but in compliance with your request I communicate them, and should be gratified on receiving some account of your own management.

I am, dear Sir,
Very respectfully,
Your obedient servant,
LEONARD JARVIS.

To this obliging communication, I take the liberty to subjoin a particular account of the above gentleman's flock from his printed advertising card.

"I have four distinct flocks of different properties, but of equal value in the market:

1. Saxon mixed with Merino: fleeces extremely soft and fine, averaging about 2½ pounds, staple generally very short; these are not so hardy as full blooded Merino, and consequently increase more slowly.

2. Unmixed Merino of the Escurial or Royal Spanish stock: these are very little inferior in fineness to the Saxon; staple somewhat longer, and more elastic, fleeces rather heavier; these are more hardy and productive than the Saxon Merinos.

3. Unmixed Merino of the Paular stock: these have still heavier fleeces, not so fine or soft as the Escurial; they are compact in form; constitutionally most hardy of the Merinos, and by far the most prolific.

4. Grand full blood Merinos: stock the result of previous intercourse of Escurial and Paular bucks and ewes, and consequently uniting their qualities of form and fleece, but occasionally exhibiting the peculiar characteristics of the Paular and Escurial only.

(Signed) LEONARD JARVIS."

[For the New-York Farmer.]

To the Honorable Louis McLane, Secretary of State of the U. S. A., Washington City.

CONSULATE U. S. A., CAMPECHE, February 1st, 1834.

Sir,—The subscriber now presents a brief recapitulation of some facts and arguments, in favor of the *immediate* domestication of Tropical Plants, in the United States. He wishes thus to show, not merely that the cultivation of tropical staples is *practicable* in our Territory,—but also, that it is absolutely *necessary* for home consumption,—is positively *profitable* for the foreign market, and is highly *desirable*, in other respects, to promote the peace and prosperity of the Union.

The *practicability* of cultivating tropical productions in general, he has manifested with the facts, that the peculiar climate of the tropics extends beyond the astronomical boundary, several degrees north, into our peninsular territory; and that the best plants of the tropics are actually flourishing in the southern portion of that Peninsula, at Cape Florida. He has not only shown that, below 28°, Southern Florida enjoys the dry warm winter—the wet refreshing summer—the breeze by day from the sea, and by night from the land,—and the trade winds from the east, which are *common* to tropical countries in general; but he has also proved, by its narrow level surface stretching southwardly,—by the hot ocean river running northwardly, along its eastern shores,—and by the greater steadiness of the westwardly wind in those latitudes, that Tropical Florida is even *superior* to the elevated Islands of the West Indies, and to the broad Peninsula of Yucatan, in that *uniformity of temperature*, which is most favorable for vegetable growths, animal health, and physical enjoyment. He has moreover not merely shown that in this superior climate of the tropics, are already growing various common vegetables of the tropics, but he has further announced the flourishing condition of the tenderest, and yet most productive plants of the torrid zone,—the Banana plant, and the Cocoa palm, which are universally pronounced to be the greatest blessings of Providence to man; and it may, hence, be considered experimentally demonstrated, that it is practicable to cultivate all tropical productions in the soil of the southern portion of the Peninsula of East Florida.

The *necessity* of cultivating tropical productions for home consumption, is shown by the facts, that the *voluntary labor* of the many millions of the *colored races*, spread over the extremely great surface of the whole torrid zone, does *not* create scarcely any *cultivated* tropical productions for extra tropical consumption; that the *forced labor* of the few millions of the *black race*, on an extremely small surface of the West India Islands, *does* create nearly all the cultivated staples for exportation; and, that the forced labor of this black race, with its essential auxiliaries, the skill and capital of the white race, is becoming greatly reduced by the recent emancipating act of the British Parliament.

According to Crawford, the friend and author of "Sugar without Slavery," the free labor of all the natives in the immense belt of the world, between 30 N. and 20 S. latitude, supplies an annual exportation of about 61,500 tons of sugar,—a quantity which is not equal to the biennial crop of the slave labor of the few negroes in a little district of Louisiana!! Indeed, the greatly superior productiveness of the forced labor of the *colored* natives in *hot* climates, over the voluntary labor of those races in those climates, is doubted only by distant theorists on the false data obtained from the voluntary labor of the *white* natives of *cold* climates; and from the unphilosophical supposition of the equality or sameness of the different species of mankind. Yet, while this undeniable fact unequivocally shows the relative advantage of employing our existing slaves in the cultivation of tropical staples, it is not cited to prove either the positive propriety or the political expediency of the perpetual continuance of our negro slavery. On the contrary, it is expressly admitted that the *free labor of the white race* is so *much more productive* than either the *forced or free labor of the black race*, that on this account alone it will in time become desirable to transfer all the colored species to their original Africa, and to avail ourselves, even in tropical agriculture, of the voluntary labor of our white citizens alone.

As, then, the withdrawal of European skill, capital and force, from the negro labor of the neighboring portions of the torrid zone will diminish so greatly the agricultural production of tropical staples for exportation, it has become absolutely *necessary* to employ American skill, capital and force, on the negro labor of certain portions of our own territory, to create an equivalent supply of cultivated tropical products for the home consumption of the United States.

The *profitableness* of cultivating tropical staples for the foreign market, may be shown with the facts, of the immense superiority of our people and of our institutions over those of the torrid zone. Our population is composed of the best varieties of the best species of the human genus—combining all the moral and intellectual improvement of the most civilized nations of Europe. Our government is the best in the world, because it is the government of a most moral, industrious, enlightened and enterprising people. On the contrary, the best colored species of the torrid zone are inferior to the worst varieties of the white species of the temperate zone, in the capacities, as well as in the desires, of improving their individual and social condition. Their varied *mis*governments are the natural results of an indolent, ignorant, immoral, imbecile, and, consequently, poor population. Possessing very few personal desires, and very little political protection, scarcely any skill, and rarely any capital, however abundant may be the free laborers, and however cheap the free labor, their agricultural products must continue to be scanty and dear. Even in the nominal republics of tropical America, the agriculture of their Indian citizens very rarely affords an adequate supply for their limited domestic market, or even for their scanty personal consumption alone; and the future unproductiveness of the free negro subjects, of the British Islands, may be inferred from the actual desolation of St. Domingo. Our only rivals, then, in the cultivation of tropical productions for the foreign market, will be the colonies in which slave labor may remain combined with European

skill and capital. Of these, the most formidable is the Island of Cuba, and yet, her population and government are greatly inferior to those of the United States, for prosperous agriculture. The Spanish varieties of the white species of mankind, is notorious for the numerous defects of the national character, institutions, and even religion of the individuals who compose it on both sides of the Atlantic Ocean. The disadvantages for profitable production common to all colonial establishments, hence increase, both in number and weight, in a Spanish colony. The innumerable taxations of most Catholic despotism, on the time and money of its subjects, rival, in abusive oppression, the numerous exactions of most Catholic superstition, on the purse and pursuits of its professors. But independently of every other consideration, the exemption of the American planter from the heavy duties paid by Colonial planters, on the extra-tropical productions of the United States, consumed by their laborers, will enable the former to furnish tropical productions much cheaper for the European market. Even under the disadvantages of soil and climate, in our Atlantic Southern States, their actual cultivated productions of the tropics—their rice, tobacco and cotton, are profitably exported to every portion of the torrid zone itself, in spite of heavy duties and prohibitory laws; and it may be confidently predicted, that within five years, even the sugar of Louisiana will be smuggled into every port of Spanish America.

The *desirableness* in other respects, of cultivating tropical productions to promote the peace and prosperity of the Union, may be shown by a reference to the hostile policy of the governments of the torrid zone, to the present agricultural distress of the southern portion of our old Atlantic States; to the future probability of employing the free labor of our white citizens, in the agriculture of the warmest sections of the confederation; to additional considerations derived from the climate and position of South Florida; and to our moral obligations to improve the condition of our country.

The actual condition of the West India trade illustrates, not merely the disadvantages of foreign legislation to our merchants and mariners, but also its still greater injury to our farmers and other creators of domestic products for the tropical markets; as any diminution of consumption in foriegn ports not only diminishes the price of the small excess created for exportation, but also of the immense amount produced for home consumption. The fact that the fluctuations in foreign demand cause the ruinous fluctuations in domestic value, is alone an argument for substituting a domestic market; and this substitution has, moreover, become an absolutely necessary measure of self defence, against the hostile laws of the governments of the torrid zone. Nearly all our most important products, both of Agriculture and the Arts, are either loaded with excessive duties, or entirely prohibited in tropical ports. Even our neighboring Republics of Spanish America will not admit our northern wheat or southern rice, unless when compelled by famine; nor our greatest staples of tobacco and cotton, under any circumstances whatever. As tropical Mexico refuses to take in exchange our corn and our rice, our tobacco and our cotton, we are therefore virtually compelled to cultivate her vanilla and her jalap, and her cochineal cactus, and above all the *foliaceous fibres* of her Henequen Agaves. As tropical Cuba refuses reciprocity to our vessels, engaged in transporting her sugar and coffee to our own ports, we must cultivate enough of both staples, to freight them more profitably in the coasting trade. But even under the most favorable legislation of tropical countries—a perfect and perpetual free trade—our landed and shipping interests may be both more profitably employed in domestic commerce, with the producers of tropical staples in our own territory. It has already been proved that even our slaves can create cultivated products more abundantly, and much cheaper than either the freemen or slaves of the torrid zone. It is also equally certain, the standard of comfortable subsistence being so much higher in the United States, that even our slaves consume a much greater quantity of extra-tropical products. Hence, a reciprocal augmentation of supply and demand will form a mutually more profitable trade between the colder and warmer divisions of the Union.

The *agricultural distress* of the *sterile* districts of the *old* States, (or northern and southern Atlantic States,) is principally caused by the cultivation of their common staples in the *fertile* districts of the *new* States, (or western and southwestern States;) and the only agricultural remedy for this distress, will be found in the cultivation of such new staples *as are equivalents to adding fertility to barren soils.*

It is true that the farmers of the cold northern Atlantic States cannot well compensate themselves, for the superior productiveness of the western States in corn and wheat, by cultivating the vine and the mulberry; and that hence many are forced to become manufacturers and mariners; but it is very certain that the planters of the warm southern Atlantic States can more than compensate themselves, for the superior productiveness of the southwestern States in rice, tobacco and cotton, by cultivating the cassave jatropha, the cochineal cactus, and the henequen agave; and that the sugar palm on the poorest soils of Georgia, will be more profitable than the sugar cane on the richest loams of Louisiana. As we possess all the soils and climate, with the best people and institutions of the world, we have neither the necessity, nor the desire, nor the power of European agriculturalists to force the production of similar plants, in inferior climates and on inferior soils. On the contrary, an American cultivator must select the naturally most productive soil and climate for a given plant, or the naturally most productive plant for a given climate and soil. Hitherto our agriculturalists have preferred changing the place of location to varying the object of cultivation; and hence the fertile valley of the Ohio and Mississippi furnishes the cheapest and most abundant supply of our present staples, both for the domestic and foreign market. Although the only formidable rivals of our western and southwestern cultivators, *are themselves*, they have already reached the extreme of over production for foreign consumption. Our southern planters, on their inferior soils, cannot hence any longer continue the profitable production of similar staples: and by augmenting the number and capital of southwestern planters, they only injure the latter without benefiting themselves. They must, therefore, seek *new staples* of cultivation in the *naturally most productive plants for their reputed barren soils.* Rich and poor, fertile and sterile, are only *relative epithets* in their application to agriculture; and hence the poorest soils for rice and cotton, may be the richest soils for cassave and henequen, and the most sterile soils for the tobacco plant and the sugar cane, may be the most fertile soils for the cochineal cactus and the sugar palm. "Palm sugar, not cane sugar, supplies the great consumption of the people of the East Indies, in the poorer and more mountainous countries." "As the palms are the produce of poor soils, and the labor is so small and the quantity of saccharine matter from them so great, that palm sugar is produced at about *half the cost* of cane sugar, of the same degree of purity,—that is, for something less than one penny per pound."

Our present tropical staples require a costly, troublesome cultivation; demand a thick vegetable mould; and impoverish the richest soils in which they are planted.

But the future tropical staples of the south will need only a cheap, simple cultivation; will content themselves with bare sandy earth; and will actualy enrich the poorest surfaces on which they spontaneously grow. And as our tropical rice, tobacco, and cotton, on equal soils, are absolutely more productive than in their native climates, we may confidently anticipate that our southern States will enjoy an equal superiority in the culture of tropical cassave, cochineal, and henequen.

Reciprocal prosperity being thus restored, our southern brethren will cease to calculate the value of the Union.

The possibility of employing the voluntary labor of our white citizens in tropical agriculture, becomes especially important, from the consideration, that the United States embrace the only portion of the world in which the best laborers and the best institutions can be combined, in the cultivation of tropical productions.

The neighboring miscalled Republics contain four times as many Indian as white citizens; the latter are the least productive variety of the white race, and their governments are mere military anarchies. The neighboring distracted Colonies contain a majority of negroes, who, when freed, will expel the whites; and thenceforward, like their Haytian predecessors, they will be productive alone in the propagation of their species. Tropical Asia and Africa cannot endure white laborers, nor free institutions; and Eu-

rope has not any tropical climate into which her white laborers can extend.—But our Southern States contain already a respectable number of white laborers: and in Florida they will probably outnumber the negro laborers. The slave States, in their own time and manner, will eventually emancipate and transport all their colored laborers; and we shall then present to the world, the only possible example of tropical staples created by the most productive species of mankind, under the most favorable form of government on earth.

The additional considerations derived from the climate and position of South Florida, embrace the retention within our borders of those fellow citizens who annually leave it to locate themselves or to perish in foreign countries. Texas and Cuba are constantly attracting our agriculturalists, who soon sorrow for the happy institutions of their Fatherland, and who will return when the existence of a superior tropical climate in Southern Florida shall become generally known.

The south of France and of Italy have hitherto invited our invalids to perish in the great vicissitudes of their changeable climates, but hereafter they will seek for health in the unrivaled uniformity of temperature, and advantages of position, presented by the tropical extremity of our Peninsula.

Our moral obligations to improve the condition of our country are based on the unparallelled combination of advantages with which it has been favored by Providence. With the most favorable form of government, and the most productive varieties of the best species of the human race, we have all the soils and climates of the earth; and the consequent ability to cultivate most profitably all the most valuable varieties of the best species of the vegetable race. It hence becomes our duty to combine within our territory the creation of the greatest possible amount and variety of cultivated vegetable products for the physical enjoyment, not merely of our own citizens, but also of the inhabitants of all extra-tropical countries, and probably even of the natives of the torrid zone itself. It has been demonstrated, that with a natural equality of soil in even our extra-tropical climates, our slave labor can create cultivated tropical products much more abundantly and cheaply than either the free or slave labor of the colored natives of inter-tropical countries; that many articles of tropical, culture instead of deteriorating, become more productive beyond their native zone; that we may ultimately apply the still more productive free labor of our white citizens to the cultivation of tropical staples; and that such laborers, under such institutions, cannot be devoted to tropical agriculture in any other part of the world. The great equatorial current of the ocean, after cutting off New-Holland from Asia, wearing its way round southern Africa, and being reflected by tropical America, brings to our shores, under the name of the Gulf Stream, the accumulated heat of the torrid zone to encourage our cultivation of the valuable vegetables of that unproducing belt of the globe. The white population on its borders will soon be forced to embark on its bosom for the United States. Once entirely abandoned by the skill and capital of the white species, the colored species will not furnish an adequate quantity of even *uncultivated* products for extra-tropical consumption. Even logwood, mahogany, and other wild materials for the arts, are diminishing every day. The Peruvian bark, sarsaparilla, and other spontaneous medicines, are also vanishing, and noxious substitutes are exported to kill, instead of cure, our fellow citizens. If, therefore, we do not *speedily* naturalize *all* useful tropical plants in tropical Florida, they will soon disappear from the surface of the world.

I have the honor to be, Sir,
Your obedient servant,
HENRY PERRINE.

To the Honorable Louis McLane, Secretary of State of the U. S. A., Washington City.

CONSULATE U. S. A., CAMPECHE, February 20th, 1835.

Sir,—As an appendix to his communication of the 1st inst., the subscriber avails himself of the only statistical data in his power to *demonstrate* the greatly superior productiveness of slave labor in the United States over slave labor in the West Indies.

British West India Colonies, 692,700 slaves, 427,392,000 sugar, and 19,769,500 coffee exported.

Spanish Island of Cuba, 286,942 slaves, 162,703,425 sugar, and 42,971,625 coffee exported.

Louisiana, 109,631 slaves, 70,000,000 sugar, and 72,000,000 cotton exported.

Now, admitting for a moment that the culture of cotton is merely equal to the culture of sugar and coffee, as 109,631 slaves produce 142 millions of sugar and cotton in Louisiana, in the same proportion, 692,700 should produce 897 millions of sugar and coffee in the British West India Islands: and in the same manner, 286,942 slaves should produce 371 millions of sugar and coffee in Cuba.

But the former do produce only 447 millions, and the latter only 205 millions, together 692 millions, instead of the 1268 millions which they should produce in proportion to Louisiana. But the truth is, that the relative value of labor of the production of cotton is at least fifty per cent. more than the value or labor of the production either of sugar or coffee; and hence the combined 979,642 slaves of British W. I. Islands and of Cuba, should yield 1590 millions! instead of 672 millions of sugar and coffee, every year, for exportation; or in other words, with an equal number of slaves, Louisiana would supply the consumption of the world!!

To obtain the details of the relative productiveness of a single negro, the following estimates are presented of a sugar plantation in Louisiana, and of a sugar plantation in Cuba, each assumed to yield annually 400,000 pounds of sugar.

The first are contained in the report of the Agricultural Committee of Baton Rouge to the Secretary of the Treasury, against the reduction of duties on imported sugar, and must hence be presumed to present the most unfavorable aspect of the cultivation of sugar in Louisiana. The second is taken from pages 108-9 of the Statistical History of Cuba, by Dr. Ramon de la Sagra, who presents the most favorable aspect of the cultivation in general of the staples of that Island. The first diminishes the average product of an acre in Louisiana, to 1000 pounds of sugar. The second exaggerates the average product of an acre in Cuba, to 2038 pounds of sugar,—although he had previously admitted that Humboldt was correct in limiting it to 1116 pounds the acre, or 1500 arrobas the caballeria.

The Louisiana plantation is stated 1200 acres=$50,000; improvements=$50,000; negroes 80, at $600 each,=$48,000; total 148,000 dollars.

The Cuba plantation is allowed only 30 caballerias, or 981 acres,=$54,000; improvements=$65,490; negroes, 90, at $400 each,=36,000; total 155,490 dollars.

Of the Louisiana plantation, *one third*, or 400 acres, is cultivated—giving to each negro 5 acres, and 5000 pounds product in sugar.

Of the Cuba plantation, *one sixth*, or $196\frac{3}{10}$ acres, is cultivated, giving to each negro $2\frac{18}{100}$ acres, and $4444\frac{4}{9}$ pounds product in sugar, i. e. $555\frac{5}{9}$ pounds *less*.

The proportion of the annual expenses of the whole plantation is, for the negro in Louisiana, only 105 dollars,—while for the negro in Cuba, it ascends to $151\frac{48}{100}$ dollars; i. e. $46\frac{48}{100}$ dollars *more*.

Hence, although the slave in Cuba may cost 50 per cent. *less*, and the ground he works may produce upwards of 100 per cent. *more*, the slave in Louisiana, both positively in sugar and negatively in money, may gain for his master upwards of 100 per cent. more!!

Without reference to the *price* of the sugar, or of the coffee, or of the cotton, it may, in the same way, be shown, that on *inferior soils* even our slave labor will create much greater quantities at much less expense!! But when we admit the soil and climate to be *equally* productive, how infinitely superior are the products of American *skill*, capital and *economy*, combined; and when we still further contemplate the *greater* productiveness of most articles of tropical culture, acclimated within our territory, we may safely anticipate that within twenty years, the southernmost sections of our Union will yield every tropical staple for the consumption of even the torrid zone itself.

I have the honor to be, very respectfully, sir, your humble and ob't serv't,
HENRY PERRINE.

Mr. Grove, Saxons, Merinos, South Downs, &c.

September 17, 1835.

To the Editor of the N. Y. Farmer:

SIR,—The pressure of business at this season of the year, permits me to take but a brief notice of Mr. Grove's "reply to R," even were I disposed to do otherwise; which, however, could hardly be the case, when a man allows so little distinction to be made between himself and his sheep. Without, therefore, presuming to decide how far Mr. Grove's reply to R. is "*in*

every way manly and proper," (and his panegyrist had almost said "*conclusive*,") I can, in common with every farmer, venture to decide, at least, on its incorrectness, for 2¾ lbs. of (*even Saxon*) wool will *not* amount to $2 40. Perhaps Mr. Grove will explain, how he arrived at such a result; and, at the same time, inform us why, in his quotations from the Cultivator's price current of May, he omitted the Merinos; for it was the "Old fashioned Merino," that *I* contrasted with the Saxons as being—"a much better constitutioned sheep, and more than made up by quantity for the difference in the quality of their fleece." But, I observe, in all the various comments and letters that have been published by the owners of Saxon sheep, that a guarded silence has been observed in relation to *this* comparison. Let us then see how the excluded Merino will rank, when the quotation is correctly made; taking the very same price current for our data, and allowing them to shear 4 lbs. of wool, which I presume our older farmers can well remember was no unusual clip, the account will stand thus:

Saxons shearing	2¾	lbs., at 80	cents,	$2	20
Merinos "	4	" 60	"	2	40
S. Downs "	4	" 53	"	2	12
Bakewells"	7	" 33	"	2	31

So much for the comparative value of the *wool* from these several varieties, which, when constitution and carcass are added to the estimate—(no small or unimportant items)—will place the Saxons where they belong; and where, I presume, Mr. Grove is not at all prepared to find them. The writer, who exclaims against the monstrous idea of butchering a Saxon sheep, reminds me of a certain breeder of Alderny cattle; who, in comparing them with the short horns, stated that "*he wanted a small animal whose carcass was too valuable for beef*."

It would seem that my estimate of the weight of fleece from the high bred Saxon sheep was about a fair average; for though it was 2½ oz. below Mr. Grove's *actual* clip, it exceeded the average of another flock by 4 oz.—and *that other* flock, if I may judge from the estimated value of its wool, is decidedly the highest bred; and, as might have been expected, cuts the lightest fleece.

The only remark I would offer upon the success of Mr. Grove, and others, in raising Saxon lambs, is, that it proves *their care* of the animal, rather than *its* hardiness; for upon the same principle, tropical fruits may be, and *are* raised in this country—they only require *the necessary* care and attention; and by the aid of hot houses and good gardeners may be perfected, and, in some situations, rendered profitable; but all this would not prove them to be suitable plants for a farmer's garden. And so may Saxon lambs be reared by "*kind treatment, abundant food, proper care, &c. &c.*" All this may do very well for the few, who are willing and able, but does not come within the reach, the practice, or the habits of farmers generally; these prefer a hardier animal, especially if that hardier variety should prove equally profitable.

In allusion to what has appeared in relation to R.'s answers to the queries sent him by the Cultivator, I must beg leave to observe, that if Editors and their correspondents, when examining a subject, or offering an opinion, apart from all personalities, are bound to know and care for the *individual interests* that *may* be effected by the investigation, and are expected to apologize to every morbid sensibility that *imagines* itself alluded to and injured, then indeed would the Editorial chair become nothing better than the humble seat of an apologist, and the farmer be disappointed in the promised usefulness of agricultural publications.

But, as Editor of the New-York Farmer, I trust this, Sir, can never be your position; and while the respectability of your paper must insure to your correspondents exemption from personal allusions, I doubt not it will be open to every inquiry and opinion, by which *truth* may be either elicited or established. Under these impressions, I do not hesitate to ask you to lay before your readers the article by R., as it appeared in the Cultivator, that *they* may judge for themselves of its tenor and character; that they may discover, if possible, where the personalities are that required any one "to appear and defend himself," or what reputation was touched, but that belonging to a Saxon sheep; for really it does seem to me that your readers, judging only from the various allusions and comments upon the article by R., must suppose it an attack upon *men* rather than an essay upon *sheep*; and that recrimination was the order of the day. As to the burlesque upon the South Downs, they can bear that, and much more, and still make good their claims to *real* excellence; but let it not, at this moment, draw our attention from the more important question, as to the *comparative value* of the "Old fashioned Merino sheep," and the more modern Saxon. And by way of eliciting all that can be ascertained on the subject, allow me the liberty of citing to your notice, an article in the New-England Farmer, of August 26, under the head of "Merino Sheep," hoping you will give it insertion in your next number, as it appears to come from one well acquainted with the *particular varieties* of the fine wooled sheep, and who will be less liable to the imputation of ignorance than myself, and probably not so easily "deceived as to the identity of the pure Saxon breed." Thus we shall have the *collected* views, opinions, and experience of different breeders on this important subject; and that too at a time, when an increased attention seems to be given to sheep husbandry.

Relying on your entire impartiality, in laying before your readers all that can assist us in forming a correct judgment on the subject, I am, with respect, &c.,

R.

The Shakers. By H. C. [For the New-York Farmer, and American Gardener's Magazine]

PATTERN FARMING.—The nearest approach to what may properly be denominated pattern farming, as far as my observation extends, is to be found among the Shakers. With two of these establishments I have been somewhat familiar; one at Canterbury, H. H., and one at Hancock, in Mass. To a mind pleased with the most exemplary industry, sobriety, good order, neatness, and exactness, nothing can be more gratifying. Of their religion I shall say nothing, farther than to remark that there must be some good in a religion from which so many good fruits arise.—Every man's religion, except so far as he may injure his neighbor's peace, or disturb the public tranquillity, is, in my humble opinion, an affair entirely and exclusively his own; and on the same grounds, on which I claim freedom for myself, I am entirely satisfied, that these upright and peaceable communities should enjoy their liberty. But their industry, economy, neatness, and good management are no where exceeded, and above all praise.

The farm, occupied by the community at Canterbury, comprehends two thousand acres in one body, and five hundred in outlands. It is situated on a high and broad hill; and the buildings, which are remarkably neat and commodious, are visible at a considerable distance. The public road runs through the centre of the farm; the lots are well divided by good and substantial fences; the gates are neatly painted, and the roads kept in the finest condition. Their first object appears to be to raise for themselves a comfortable, I had almost said, a luxurious subsistence; and beyond that the surplus is sold either in a raw or manufactured form. Their grass fields are perfectly clean; not a stone, not a stump is left standing, not a weed is suffered to grow by the wall side. The land here is of an inferior character by nature; cold, gravelly, and clayey, and hard to work; but cultivation perseveringly and judiciously applied, have rendered it comparatively rich and productive. I was curious to come at the amount of crops by some better authority than by conjecture; and one of the principal Trustees was kind enough to communicate some facts, which I deem instructive.

From a piece of grass land of twelve acres near the principal dwellings, they usually, and upon an average, obtain twenty-eight tons of hay per year; and in one year they obtained, accurately ascertained, thirty-eight tons of good English hay. This land has been forty years uninterruptedly in grass; it is measured regularly and copiously every second year, and a spike roller is used upon it with great advantage in the spring. Their crop of oats this year, upon ten acres, averaged sixty bushels to the acre; and they spoke with approbation of the Tartarian, or as some call it, the one-sided or horse-mane oat. They have been many years in the use of the revolving horse rake, which they make with admirable neatness, pointing all the teeth with iron; and for the sake of cleaning the field after the horse rake, they use a hand rake, the head of which is about five feet long, and which is made fa s

to the handle by two long iron rods. Where the grass is thin this rake is easily managed by one man, and a great deal of work is done by it.

Their pig-stye is well worth a visit for the neatness, yes, the neatness of a pig-stye! and the admirable and happy condition of its tenants. Twenty or thirty swine in clean swept styes, whose average weight at killing time will be between four and five hundred pounds, is a sight which Parson Trullive, in Joseph Andrews, would have looked upon with ecstacy. The whole care of the swine in one building devolves upon one man, whose feeding tubs, and pails, and dippers, and cloths, and brooms, were as exactly arranged as in any lady's kitchen. The troughs are projected in front of the styes; and are closed by a swinging cover. When they are to be fed, this cover is bolted down to the inner side of the trough, so that it may be cleaned, and the food put in without any interference from the hungry expectants, who are not suffered to come to the table until every thing is ready; when the swinging cover is raised and bolted to the outer edge of the trough, to which they then have ready access. I hope I have made this arrangement intelligible, as it is decidedly the most convenient I have ever seen. Intimacy commonly produces attachment; and I was curious to know of the respectable old man, who took care, if he did not become fond of them, and feel some reluctance to having them killed. Nay! nay! says he, from which I was compelled to infer that the poor hog is actually beyond the pale of human sympathies. Why is this? have they no virtues? if they have, they remain to be developed; have they no moral sense? it seems to me nothing which approaches to it; in this respect they appear to stand almost at the lowest round of the ladder in the animal creation; and last of all, whether they have virtues or moral sentiment or not, they certainly, to use the current Yankee phrase, "they certainly have no manners." This seems to exclude them from all courtesy, and to shut up even the compassions of a "Friend" towards them. I have only to add that the food is always cooked, and that the Shakers consider a portion of rye mixed with corn as very much improving their food. Their experience leads them to the conclusion that they would prefer to buy rye at a quarter of a dollar more a bushel than corn, to mix with corn in equal parts, than to give their swine Indian meal alone.

Their dairy is extensive, and in its interior arrangement is most admirable for its order and neatness. Their butter was very superior, and their cheese, I am told by those who can judge of it, equally to be commended. A little contrivance for turning their cheeses, which I cannot, I fear, describe so as to render intelligible, but by which the board on which the cheese is placed is suddenly inverted by a spring, was ingenious, and made it easy to manage the largest cheeses. I visited at milking, one of their yards of forty or fifty cows, whose appearance and product were good. In this part of the country, the season has been universally unfavorable to dairy products. A few years since, they obtained an improved Durham short-horn bull, reputed of pure blood, and a descendant of Admiral; and a large proportion of their cows are half-blood of his stock; but the cross has not been attended with any particular advantage in respect to milk.

They have various contrivances for facilitating labor; among others, by means of a windlass, a swinging beam, and some large iron hooks, they are able to take a load of hay from the cart at one lift, and deposit it in the mow. Their situation afforded no natural water power; but by the erection of a dam between two hills, and turning several springs, they have formed an artificial reservoir or head of water, which affords a supply for all their purposes; and this water is used six times before it reaches the foot of the hill. They have on the stream a threshing mill, saw mill, corn mill, bark mill, and other works. Their threshing machine is of their own invention, and has evidently furnished the model of many of the machines for which patents have been taken out.

They have a very fine vegetable garden, and raise a great amount of seeds for sale, and likewise a botanical and medicinal garden; and dry and press great quantities of culinary and medicinal herbs, which are disposed of in different parts of the country to advantage. These establishments are also managed with exemplary care. Their flock of sheep is compartively small, chiefly of the pure and mixed Merino. The yield of wool is over four pounds, but it is not washed upon the sheep's back, as they deem it injurious to the sheep. They have a small flock of Dishley or Bakewell sheep, which they are inclined to dispose of; as they consider them as less hardy and not so profitable for their purposes as the Merino. I give these opinions of theirs, which perhaps are mere prejudices, without comment.

The Shakers' village at Hancock and Pittsfield, Mass. is a smaller village than that at Canterbury; and their operations are chiefly confined to providing for the subsistence of the family, to some few manufactures, and to the raising of garden seeds. In point of soil, the location is not very eligible; but there are throughout the whole establishment the same order and neatness, the same admirable and ingenious use of all the means and powers for facilitating labor that come within their reach; and the same general indications of industry and good management, which appear in the former case. The great object of agricultural curiosity at Hancock, is their magnificent stone barn, two stories in height and ninety six feet in diameter. The great mow is in the centre, and is said to be capable of containing between three and four hundred tons of hay. The floor or driveway is on the outside of the circle, and the team goes round and comes out at the same door at which it enters. Several teams can stand on the floor and be unloaded at the same time. In the centre of this mow a large post or mast is erected, reaching from the ground to the roof. At the apex of the roof is a small cupola like those usual on distilleries. Around this post, slats or strips of plank are placed at a small distance from it, to prevent the hay from coming in immediate contact, and the hay at the bottom being raised by an open frame from the ground, a perfect ventilation is formed, and the steam from the new hay is in this way effectually carried off.

Upon the whole, it is hardly possible for an observing man to visit these establishments without the highest gratification. They have very great advantages in the amount of labor, which they are able to apply to any purpose, which they design to accomplish; and this labor is a most valuable capital, though they are not wanting in pecuniary resources, their honest gains being carefully secured and managed. But they are at the same time entitled to the highest praise for their good conduct and good management. Their farms are literally pattern farms; models of careful, frugal, judicious, exact, neat, profitable husbandry. They are an exemplary and useful community; just in their dealings; peaceful and orderly in their deportment; wishing well to all men. They contribute their full share in bearing the public charges; and at the same time they throw no burdens whatever upon the public purse, and ask no favors of the public beyond simple protection. That there are some hypocrites or knaves among them, is very probable; for what community is without its corrupt mixture? but it is highly to their honor that no general charge of this nature has ever been substantiated; and that the general character of the Society for honor, purity, truth, and justice, strong as has been the tide of prejudice and superstition against which they have had to contend, has remained unimpeachable. The disciples of Malthus, and the benevolent political economists of the present day, could no where expect to see in more perfect operation the great moral preventive check. To be sure, on the principles of the Shakers, the world must soon become a solitude; but there are counteracting influences in human nature amply sufficient to save us from all apprehensions of any such disastrous results. The population of the world will go on, and if, with its increase, happiness and improvement will be extended, so also must poverty, misery, and vice prevail. This peaceful community will present a refuge to many, wearied and disheartened with the cares and perplexities of life; will afford a favorable opportunity to other anxious and

sensitive minds to cultivate, perhaps under very mistaken, though honest views, an extraordinary virtue, and a purity more than earthly; will open its welcome doors to many a friendless and houseless being, many a desolate and heart broken widow; and throw its protecting wing over many a fatherless child, and train him to habits of industry, sobriety, self-government, and moral purity. In all their good deeds and intentions, may the blessing of Heaven rest upon them. Whether they can sustain themselves amidst the expanding and brightening light and the continual and extraordinary changes of society, time only can disclose. Their extinction, to say the least, would be the loss of one of the best examples of general sobriety, industry, harmony, good order, and equity, which can be found in the world. But I fear I may have travelled too far out of the record. I had designed to speak of them only as an agricultural community; and as such their management is in every respect an admirable pattern.

H. C.

Meadowbanks, Oct. 15, 1835.

We are indebted to our worthy friends Messrs. William Prince and Sons, for the following communication, for which they will please accept our thanks.

Notice of some Varieties of Watermelons. By T. S. P. [For the New-York Farmer, and American Gardener's Magazine.]

Perhaps nature has been seldom more bountiful to the lovers of fine fruit than during the present season. If she has in one or two instances denied us some kinds to which we have been accustomed, she has been lavish in the distribution of others, which do not always attain a high degree of perfection.

Amongst these may be enumerated the watermelon; and as there are a number of varieties of this fruit, I have thought a description of three of the best, would not be unacceptable to those who feel an interest in their culture.

The variety most esteemed in Virginia, as far as my acquaintance extends, is the *Symme*. I believe it has been grown here for more than six or seven years; and it takes its name from the person who first introduced it. The fruit is oblong, frequently growing with a neck, and weighs from twelve to twenty pounds. The rind is of a pale green, variegated with a number of veins of a deeper shade, and is exceedingly thin and tender. The pulp is red, of a sparkling appearance, melting and highly flavored. This melon is more uniformly good than any I have cultivated. The thinness of the rind prevents its being raised for market, and it is therefore seldom found except in private gardens.

Hill's Kentucky Melon, has very much of the external appearance of the preceding. It does not however quite attain the same size, and is more globular in its form. The flesh is also red, and the *heart* of the melon is fully equal to any thing of the kind I have ever seen. It is decidedly a very superior variety; and, what adds to its value, it comes to the table early in the season, and is withal an abundant bearer.

These two kinds will probably be enough to plant in a private garden. They will yield a succession for a length of time; and by adopting the mode recommended by D. T. in the Genesee Farmer of last year, they may be made to mature their fruit several weeks sooner, than if cultivated in the usual manner. The directions I allude to, are alone worth one year's subscription to any agricultural paper. The melons are not only brought to perfection at an early period, but the vines are more prolific, and are not liable to die off suddenly in the full vigor of their growth. Those which I have raised in this way, after ripening a full crop, took a second growth; and are now as luxurient as ever, with a number of young melons upon them.

While on the subject, the *Apple seeded* variety deserves a passing notice. It is of inferior size, but it comes early to maturity, and is moreover something of a curiosity. The pulp is firm and rather dry; and the flavor not very fine. Those who like to have the earliest of every thing, will not reject it on account of its quality; but they will be very willing to see it superseded for the remainder of the season by such kinds as I have previously described.

The melon should not be planted two successive years in the same place. T. S. P.

Virginia, 9 mo., 7.

Motives for Exertion. By L. T. [For the New-York Farmer, and American Gardener's Magazine.]

It is related that an eminently useful missionary resolved, in the early part of his carreer, "that the globe should feel his influence." There is something in this resolve that is sublime, and at the same time awakening to the dormant energies of the mind.—Could but comparatively few of the enlightened portions of mankind be roused to a similar state of feeling, the moral and physical world would speedily undergo a transformation paradisical and majically beautiful. In ameliorating the condition, and in augmenting the trans-mundane happiness of the human race, the Creator works by a succession and concatenation of means. It is clearly evident, by the language and events of the day, that the principal of these means is the agency of benevolent associations. Not less true, though not so strikingly evident, is the indirect dependence of these associations on productive wealth, and principally and primarily on that of agriculture. Hence the lever that is to sustain the benevolent world, and thus accomplish heaven's purposes, is committed to the hands of farmers. This is to be made efficient, not simply by physical strength, but first by that disposition of it which experience and science pronounce to be the proper one.

Illustrative of these remarks, I will adduce simply two facts—heretofore published in the Farmer—and request my readers to revovle them for a few moments—to consider how immensely productiveness would be increased if all should go and do likewise—and how the "fulness of the earth" would invite devotees around the altar of the Supreme almoner.

At page 257 it is stated that an average income of $1323.17 is obtained from 29 acres—at p. 258 that Mr. John Lorain increased the productiveness of a farm of 64 acres from $1068.02 to $4200.20 a year.—To these facts I will state that a gardener residing near the city of N. York pays to the owner of a farm of 40 acres a yearly rent of upwards of $400 in cash as half of the amount of produce, besides articles from the farm amounting to upwards of $50.—At p. 279, we are informed that a farmer, by 18 years of improvement in his corn, succeeded in obtaining from each stalk two ears instead of one throughout almost his entire cornfield.

These facts, when viewed as individual and detached results, are indeed comparatively humble and unimportant; but collectively as the practice of the agricultural world, they are of vast import, and present motives for exertion both powerful and elevated. L. T.

Sept. 16, 1835.

Notices of the Season. By H. C. [For the New-York Farmer, and American Gardener's Magazine.]

The season is now closing its concerns; and the husbandman will soon have completed his in-gatherings. In most parts of the country the temperature has been extraordinarily low, and the drought severe; but the general health of the country has been almost unexampled. The spring was unusually backward and cold, and much suffering and loss in some places were experienced from its severity. From this circumstance and the drought the grass remained short, and it was thonght deficient in sweetness; the products of the dairy will therefore fall below their usual amount. The increased price however will remunerate the farmer, and make the returns of his dairy of an equal value with years of greater abundance. Wheat in general fell considerably short of its usual yield; rye has proved a larger crop than common; oats have given every where an extraordinary product. Potatoes are most abundant and excellent. Indian corn in general must be a small crop. Much was necessarily planted very late; and could not have been expected to come to maturity, but in an unusually long season; and a great deal has been materially injured by the frosts in August and September. The long continuance of dry and warm weather, in October, will be of great advantage to

the crop. In the review of the season, however, the husbandman will find most ample reason to be grateful. The prices of agricultural produce have been high through the season, and so seem likely to continue. The great obstacle to agricultural success is the extreme difficulty, in most parts of the country, of procuring labor. Wages are enormously high; and even at high wages laborers are hardly to be procured.

The great extension of manufactures of every description, the numerous public works and improvements, which are now going on in different parts of the country, employ a vast amount of labor, and render it difficult for the farmers to procure sufficient for their purposes. Besides this, the condition of almost unheard of prosperity prevailing every where, places many, who otherwise would be compelled to labor, above the necessity. A very little exertion will supply all their wants; and the improvident and reckless are not willing to look beyond the present hour. Industrious and sober young men can, especially in the great West, at once become freeholders, and place themselves on their own territories, in comparative independence. In the competition likewise of employers to obtain laborers, and the struggle of laborers to get as high wages as possible, the morals of both classes suffer, and the most mortifying and painful vexations occur. Unprincipled employers seduce, by the offer of higher wages, those in the employment of their neighbors; and the laborers, who know that under the great demand for labor, whether with or without character they can always find employment, become insolent and treacherous; and as often without as with reason, from mere caprice, or the expectation or promise of higher wages, quit their service, violate their engagements, and oftentimes in the busiest seasons leave you without help or remedy. We speak not from personal experience, but from universal experience. The complaint is general, and utterly discouraging to any extensive operations. "Formerly," says a very excellent and reasonable neighbor, "my hired man lived with me; now I live with my hired man." Indeed, in many parts of the country, especially remote from cities, where occasional labor is always to be had, the employer, however just and liberal his treatment and compensation, is brought into such a condition of servile and anxious dependance, as to take away much of the comfort of life; and involve him in the most mortifying vexations. Such a condition of things is extremely unfavorable to both parties; it is prejudicial to the interest of one party; and to the respectability and morals of the other. What is the remedy, we cannot at present see; but wherever it prevails, agriculture properly so called must decline, and land will be thrown out of cultivation; farms must be more and more devoted to mere grazing; and the improvements to be expected from large operations, and the employment of extensive capital in agriculture, must be given up. Every benevolent mind must look with the highest satisfaction upon the elevation and improvement of the condition of the working classes. Every just man will be anxious that the rights of the laboring classes should be protected, and that labor should not be shorn of its just reward. But there are rights on both sides; the employer, or, if you please, the capitalist, is not without his cares, anxieties, labors, and risks; by the extensive employment of capital all classes in the community are essentially benefitted; the more ground is brought into cultivation, and the more productive it is rendered, so much the more are the comforts of life increased, cheapened, and diffused. It is of the highest importance, that the laborer and his employer should regard their interests as in a great measure identical; that employers, so far from attempting to interfere with each other, should resolutely discountenance all treachery and unfaithfulness on the part of the laborer; should seek to make character to them more valuable and essential; and law, custom, and public sentiment and opinion should lend their joint and powerful aid in securing the rights and enforcing the duties of both parties.

H. C.

Otober, 1835.

Improved Stock. By H. C. [For the New-York Farmer, and American Gardener's Magazine.]

I see by the Genessee Farmer that several gentlemen, at the head of whom is the very intelligent and public spirited farmer, who writes over the signature of *Ulmus*, propose to form a joint company for the importation of Improved Stock into Western New-York. This is certainly a most commendable enterprise; in any event, it will give a favorable opportunity of testing the value of this stock, if that yet remains in any degree questionable. But where is the necessity of sending abroad at a very great expense, at some risk of imposition, and some risk of loss, when so many animals of this kind, of the very finest character and of undoubted pedigree, are easily to be obtained among us?

At Hyde Park at the splendid establishment of Dr. Hosack, bulls combining every desirable property of form and stock, and cows of the very best kind, as I have had myself the pleasure of testing by personal observation, can, as I learn, be obtained on the most liberal terms; the public spirited proprietor of this establishment, to whom agriculture and horticulture are under great obligations, regarding his own interest as of small consideration compared with the agricultural interests of the State and country, having, at great expense, formed a herd of the very best animals, of the most approved kinds, for the improvement of the stock of his own State. There are several other establishments in New-York, Maryland, Pennsylvania, Connecticut, and Massachusetts, where probably on equally liberal terms, as choice animals of the Improved Durham Short Horns could be selected as could be imported from England.

H. C.

Cockle—("Agrostemma Githago")—of Botanists. By FARMER C. [For the New-York Farmer, and American Gardener's Magazine.]

This plant, so well know to all farmers, needs not a particular description. Its injurious effects in wheat fields are yearly experienced by our careless and unskilful husbandmen. It makes its appearance, if at all, soon after the wheat is sown; it grows well on any soil, and in case the wheat receives injury, and this hardy plant is left to pursue its onward course to perfection, its baneful effects are not only visible in this crop, but the next succeeding wheat or rye crop must suffer by its thus continued influence. As this is the season for sowing wheat, I would suggest to all person concerned the propriety of entirely excluding this vile trash from their seed, for in sowing it the evil commences. But if by any means it is found growing among the grain, our care should be extended to it before it arrives at maturity. By what means soever the farmer may attempt the total eradication of this plant, he will be encouraged in the useful and agreeable enterprise, by the conviction that the preverted vigor of no other seed will reproduce it. The proper time to remedy this evil when it exists, is the latter part of June, in its flowering season, when it can easily be detected by its large beautiful red and purple blossom. It should then be pulled up by the root. In moist weather it comes up very easy. The seed of this plant should never be suffered to come to maturity; the slightest concussion releases it from its cell, and once settled on the earth, is most sure to grow. Of seeds it is among the most tenacious of the germinating principle. It is often known to lie in pasture grounds for a number of years, and then when ploughed and sowed with wheat to spring up and materially injure the crop. The true remedy then is, clear the *ground* of this noxious plant wherever it makes its appearance, and never suffer our beautiful wheat, our supreme source of wealth, our great staple commodity, to be polluted by the presence of so sable a visaged an intruder; we should be careful to present our wheat in market to the best possible advantage, that is, have it perfectly clean from every unsightly object; it commands then the highest price; we are not made ashamed by the sometimes galling remarks of the purchaser, and it greatly increases our reputation as farmers.

FARMER C——.

Manlius, Sept. 15, 1835.

Extract of a Letter from our Correspondent, A. W., dated,

Lansingburgh, 27th August.

Business calling me to New-York, about the middle of June last, and not having completed it on the first of July, and finding, from appearances, that little could be done, till after the celebration of the Fourth of July, I took the opportunity to make an excursion of two or three days to Philadelphia.

Stepping on board the morning six o'clock boat, I was enabled, by a rapid, but pleasing and changeful travel, by land and water, to reach Philadelphia in time for dinner at the United States Hotel. Some people live to eat, and others eat to live; and as I belong to the latter class, I did not pounce my eye on the preparations for dinner in the spirit of a *gourmand*. I merely noticed the profusion of viands on the table, but I could not help, being a stranger, observing the superiority in good, wholesome, well-baked bread, fresh vegetables, and choice butter.

When dinner was over, I took a walk to the Navy Yard. The first impulse was, of course, to find something new, and worthy of inspection. With very little search, I found an object which answered the purpose. This was the new national ship, Pennsylvania, of 140 guns, now on the stocks. It was my good fortune to meet with a gentleman who was probably an officer of some grade, at any rate, I think he was worthy to be one, at least as far as politeness is concerned. He showed me, with an apparent feeling of national pride, every thing connected with it, and answered all my questions, not only with a thorough knowledge of the subject, but with seemingly as much pleasure as I could possibly take in asking them. I took minutes from some of his answers, and among the principal ones I find the extreme length of the ship is 217 feet, its greatest breadth 59 feet, and its depth, amidships, 51 feet. But as naval architecture is not my object, though I took several other notes, I will not tax the printer nor the reader with them. As I had another use for the remaining part of the afternoon, I took a rather painful leave of my interesting guide, reflecting, at the same time, with what wonderful accuracy the sweet and bitter of life are balanced; for the extreme pleasure I took with this momentary acquaintance, was exactly balanced by the pain of parting.

I now steered my course to Washington Square, a fine specimen of taste and liberality. It is situated in the southeasterly part of the city, and I was told that it contains about eight acres. It is beautifully laid out, and planted with ornamental trees, selected from various parts of the world, but, as they should be, mostly natives of our own continent; for certainly, while the Eastern Continent can boast of its ancient ruins, its broken columns, and relics of the arts of other days, now trodden under foot, and crumbling into dust, the proper field, in which to search for the beauties of nature, and to explore her inmost recesses, will be found in the forests of America. The sun was now descending far in the west, and its light striking in bold relief on the trees and flowers, and reflected from different shades of green, presented a scene beautiful beyond description.

The city contains several other spacious and beautiful squares, but I had not time to visit them. Why is it that our other cities and villages are destitute of these delightful appendages? No reason can be given, but that they were laid out, as we know was the case in the early settlement in our own State, without any plan at all, or the ground has been seized on, and sold in speculation, to gratify the sordid views of forestallers.

> When thirst of gold enslaves the mind,
> And selfish views alone bear sway,

every nobler feeling—every spark of laudable national pride vanishes, as colors vanish when light is withdrawn.

The dusk of evenlng was closing around me, and I returned to my lodgings. The day's exercise had given me an appetite for a wholesome supper, and a night of quiet repose, both of which were duly enjoyed.

At daylight next morning, I took a stroll through the market, and was soon convinced that its celebrity was justly merited. The building and accommodations were in themselves highly worthy of notice. Stretched nearly a mile in length, through the middle of a wide avenve, which is a great thoroughfare through the centre of the city, from one river to the other; and forming, on each side of it, a street of convenient width. Its plan, for beauty and convenience, could scarcely be improved. But to give an idea of the contents of this market, all I can say, from so short an inspection is, it contains samples of every thing which ever was, or can be exhibited for sale in a public market. The meats in general were fine, but the mutton, in particular, surpassed any display of that article I have ever seen. The butter was exhibited in a style of neatness and taste, which would draw tears of pleasure in the eyes of an Epicure. But it was not these more prominent articles only which attracted attention; every thing the eye could recognize, animal, vegetable, mineral, or fossil—natural or artificial, was there, and all so tastefully arranged, that the smallest article seemed to say, examine me too; while the choice fruits, flowers, and fresh vegetables, whispered, with more conscious dignity, here you may see the effect of liberal premiums from the Pennsylvania Horticultural Society.

After breakfast, taking all the rest of the day before me, I set out to view the gardens, water-works, &c.; and, taking a hackney coach, my first course was steered to Bartram's Garden and Nursery. These are situated on the west bank of the Schuylkill, about three miles from the city, and are now owned, and judiciously managed, by Mr. Robert Carr, the son-in-law of Mr. Bartram, who is well known as a botanist and naturalist; and his very superior collection of North American trees and plants, show him in the very pleasing light of being truly national.

On a stone over one entrance to the house, I noticed the date of 1731, rather roughly but plainly cut. On inquiring, I found that this front of the mansion was built at that period; and another inscription, purporting to have been cut 39 years afterwards, reads and spells thus:

> "It is god alone almyty lord
> The holy one by me adored.
> "JOHN BARTRAM, 1770."

The garden, it is said, was commenced about four years before the date of the first inscription, and is now about 114 years old. I was informed that Mr. Bartram and his son must have been about 100 years in collecting this valuable legacy they have left to the Flora of North America. A small strip of land, containing less than seven acres, was said to contain rising 2,000 species, natives of our own country. But I found also a no less rich treat in examining the exotics, which were very numerous and valuable. The collection of Camillas and tropical plants, surpassed any thing of the kind I had ever seen; among the latter were some fine specimens of Zamias, Ficus, Euphorbia Hetirophylla, &c. The grounds were tastefully laid out, and besides the amazing variety of smaller trees and shrubs, arranged, apparently, to the best possible advantage, the effect is still heightened by the grandeur of several trees, majestically towering above, and overspreading the rest: among which are a Norway Spruce, at least 80 feet high; a Cypress, (*Cupressus disticha,*) 25 feet 6 inches in circumference, and 114 feet high; native Magnolias, Flowering Acacias, &c. And beneath this lofty display of variegated foliage, on proper fixtures, I noticed a magnificent Sago Palm, the circumference of its foliage 24 feet, and the stem 3½ feet. But it is vain to attempt enumeration, when the bare catalogue would four times exceed my limits.

Between this beautiful and magnificent grove and the Schuylkill, are several fish-ponds, with gold and silver fish and acquatic plants; and still farther on, towards the river, is an ancient cider-mill, cut, with great labor, out of the solid rock, near which was a small plot of Gama grass. From the numerous accounts of the productiveness of this grass at the south, particularly in North and South Carolina, it must be found a good substitute for clover, herds grass, &c. &c., and its introduction of great importance to that section of our republic. But from an examination with some of it, raised in my garden, and also the opinion of Mr. Carr, who has had it on his grounds a dozen years, I am led to conclude it will be of no great value to our northern farmers. The vines and fruit nurseries were extensive, and appeared in

perfect keeping with the rest of this splendid establishment.

Nor was this display of nature more pleasing than the polite attention of its worthy proprietor, who not only answered, with apparent pleasure, all my questions, which, to say the least, extended to the utmost bounds of civility, but showed me many deeply interesting curiosities, and, among other things, his extensive and valuable library, principally on Agriculture, Horticulture, and Botany, which seemed to say,

"Come, let me make a sunny realm around thee,
Of thought and beauty! Here are books and flowers."

Leaving this place with reluctance, I steered my course to Lemon Hill, which is the name very appropriately given to the pleasure grounds of Mr. Henry Pratt. It is situated in the immediate vicinity of the grand Water-works, and is said to contain over twenty acres. Nature seems to have displayed her utmost power in modelling this charming situation, leaving but little for art to accomplish, to render it one of the most delightful spots on earth; and art, with such a bold and lovely model, appears to have availed herself of every advantage, to beautify and complete what Nature had so happily begun.

The mansion is placed on an eminence, commanding a delightful view of the Schuylkill, just at that point where every thing is in pleasant motion. The busy neighborhood of Fairmount, the interesting views of this fine landscape, are fully kept before the eye, by gently winding paths, through a rich and well kept grass plot; every turn producing some new and pleasing effect. The foot does not tread in the same path which the eye has gone over before. The groups of lofty trees, so advantageously placed on the hill, near the house, with their deep green foliage, form a beautiful contrast with those of more light and stinted growth, situated in front of the ground bordering on the water; thereby adding much to the effect, by seeming to remove the perspective to the farthest extremity of the picture. The numerous well stocked fishponds, with their islands and aquatic productions, summer-houses, gardens, porters' and laborers' lodges, all well placed for picturesque effect; and the beautiful little grotto, thrown so chastely over the mineral spring, all conspire to complete the beauty and variety, without, in the least, marring the productions of nature, so very interesting in the immediate vicinity. The spacious green hot houses, with their numerous and lovely tenants, spread far and wide in every direction, making the whole garden a repository of flowers and fragrance, certainly stand prominent in their kind; and as we migrate along the well kept gravel walks, so richly adorned by tree, shrub, and plant, of every shade and shape, and from every climate, intermixed with the inmates of the green house, the shaddock, orange, citron, lime, the fig tree, laden with inviting fruit; the sugar cane, pepper tree, banana, guava, and plantain; the cheremalia, mango, and splendid cactus; a reflecting mind must be lost in admiration, not knowing which most to admire, the amazing variety produced by nature, or the wealth, liberality, and taste, which have planted and sustain them there.

As I cast a valedictory glance at this enchanting scenery, the power of association brought forcibly to my mind the sligthed and neglected talents of my worthy friend Perrine, whose whole soul is compounded of botanical science and horticultural taste. Had the magnanimity of our wise National Legislature been sufficient to have granted his petition, for a few acres of wild, and, probably for a long time to come, worthless land, on the peninsula of Florida, and the little pecuniary aid, to which every sensible man in the nation would have been proud of contributing, to enable him to establish a national repository, for the introduction and acclimation of exotic plants, he would ere now have exhibited all the beauties and rich treasures of the vegetable world, flourishing in high exuberance, without the expensive aid of artificial heat. One half of the amount, which the patriotic and noble spirited proprietor of this establishment has expended, from his own purse, would have accomplished his object in a manner highly creditable to the nation, and profitable to the present and future generations. But public bodies, like corporate bodies, have no souls.

But I found the plan of my pleasing excursion, as I now find that of my letter, extended beyond the bounds to which circumstances limit its accomplishment; and I had then, as I have now, to quit the subject almost at the beginning. You know my attachment to the subject of horticulture, and you know there is nothing else so pleasing to me, except the cultivation of the human mind. But here I had both the subjects before me; one, in the situation I have so faintly described, and the other, in the more than pleasing urbanity and politeness of its proprietor, either of which, to say the least, I never saw excelled. I have ever been of the opinion, that a spirit to relish, and taste to direct horticultural improvements, is commensurately an evidence of an amiable and philanthropic disposition; and, if proof were wanting, I found it amply displayed, in the kind attention, which, as a stranger, I received, not only from Mr. Pratt, but from his principal gardener.

The day was now far spent, and I had only time to take a slight glance at the water-works. As I am not familiar with the subject of mechanics, and if I were, I had now no time for

"Examining with care each wondrous matter
That brought up water."

I can only say, of the whole, it is a stupendous establishment. But there was a peculiar charm to me in the reservoir on the hill, consisting of three beautiful sheets of water, and a fourth in operation.

The time I had allotted for my stay was nearly exhausted, and I had examined but two of the gardens, of which I had procured a long list. I had promised myself the pleasure of visiting Mr. Parker's Botanic Garden, Mr. McArran's Botanic Garden and Nursery, Mr. Hibbert's Nursery, Messrs. Landreths' Nursery, and others of equal celebrity; but the imperious call of business compelled me to forego the pleasure, and it being now Saturday night, I returned to my lodgings.

On Sunday morning I attended Church. But in the afternoon, as an exercise not altogether unapropriate for the day, I visited Rolinsan Rural Cemetery. This is a place which, though no person of common sense could leisurely enter with feelings of levity, yet no reflecting mind could spend a few moment's contemplation in it, without experiencing emotions of exquisitely pleasing satisfaction, though still partaking of a sober seriousness nearly bordering on melancholy.

This place contains 2½ acres. It was commenced in 1827, and now contains between 4 and 5000 interments, and about 100 vaults. When it was first commenced a lot about 10 by 8 feet sold for $40, but will now command from $90 to $100. An adult stranger can be buried for $8, and a child for $4, including opening and closing the grave.

The place is inclosed on three sides with a handsome stone wall, and the front side with an iron railing. On the right hand of the entrance is a dwelling for the attendants to the concern, where they are at all times to be found. On the left is a green house, with rooms over it for meetings of the lot-holders and managers.

The plants in the green house are for the purpose of ornamenting graves, at proper seasons; and hardy flowers in great variety are growing, tastefully and liberally scattered over the ground.

Among the various and numerous monuments, some were of peculiar elegance. I noticed one, on which the incription stated that it was executed in Italy. It was of exquisite material and workmanship, and I could not help admiring the skill in the fine arts peculiar to that country; but looking a little farther, I was most agreeably astonished to find one executed in Philadelphia, quite surpassing it; I could not but indulge some feelings of pride in reflecting on the amazing improvement since 30 years ago, when similar monuments were ornamented with an awful staring death's head and marrow bones.

Among the interments I noticed that of a Chinese, aged 37, buried in 1830. Part of the inscription was in the Chinese character.

I could not view this interesting spot without painful reflections, on what appears to me the unpardonable want of similar in-

stitutions in the great and opulent State in which I live. Can it be from a want of social affection in the people in this state, or can it be from feelings of parsomony, that we grudge the expense, that we suffer our friends to be put under the turf to-day, and the place of their rest broken up and perhaps appropriated to some other use to-morrow? The Corporation of your city are selected for their supposed fitness, and are duly authorised and empowered to manage and direct all affairs of public interest; and is it not a duty they owe to protect the public feelings, from what must be daily suffered by persons who cherish with tender affection the memory of their deceased friend, when they see the place of their remains turned into a common highway, or perhaps dug up, and their bones scattered and trodden into dust?

This is naturally a public concern; but if it does not soon receive the attention the importance of the case demands, it will pass into the hands of private speculation, from which it would be difficult to return it to its proper channel, and which would place it in a state truly to be deplored by every person whose heart is warmed by a spark of philathropy or patriotism. But to return.

On Monday morning I left Philadelphia, and I can truly say, I never spent three days in more pleasing gratification. Getting on board the steamboat, I lost much of the beauty of the scenery on the way to Trenton, by accidentally taking up part of a number which I had not seen before, of a new and beautiful little periodical entitled the Zodiac: it so completely engrossed my attention, that I saw nothing else till I had finished perusing it, just as we arrived at Trenton.

As natural history is in some measure my hobby, of course my attention was particularly occupied by the *Naturalist's* book, in which I was confident I recognized the pen of my esteemed friend Doct. ——, and I determined to patronize the Zodiac at my return.

A. W.

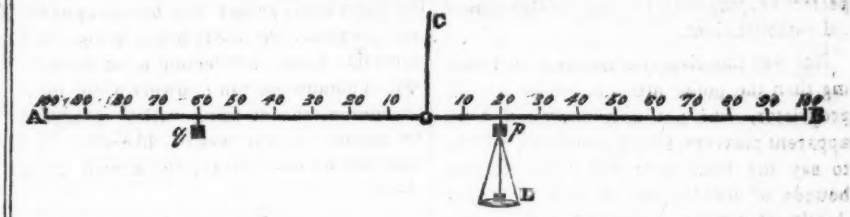
Unripe Turnip Seed.—Among the kinds of turnips I have growing is the esteemed Dale's Hybred. I had but one of the few that were set out in the spring, and the seeds of this were but partially ripened at the time of sowing, on the 24th of July.—Most of these have run up to seed, and consequently have formed nothing but small tapering roots. Of the three other kinds in the same field, not one has gone to seed.—These last were imported, and seeded in 1834.

It is a general rule, I believe, that the newer the seed the more tendency there is to stem or stalk, and less to fruit or seed. Is this case in accordance with the general rule?

S. F.

Sept. 12.

MECHANICAL ARITHMETIC.



To the Editor of the New-York Farmer:

Sir,—Permit me to lay before the readers of your Magazine, through its medium, a very curious way to perform the four principal rules of Arithmetic, viz. Addition, Substraction, Multiplication, and Division, by means of a balance. I came across it some time since, and was so much pleased with it, I thought I would send you a copy of it for your Magazine.

The balance may be made either of metal or wood; the arms two feet long each, and divided into one hundred equal parts from the centre each way.

Let any weight represent one or unity; for example, one ounce; one may in the same manner make use of the tenth part of an ounce.

Let the number 364 be applied to the balance. I apply 3 oz. to the hundredth division, and one ounce to the sixty-fourth part.

Let the arm of the balance be loaded any how; we determine what number is the value of that action by suspending at the hundredth division of the opposite arm a weight that may be increased sufficiently, by an ounce at a time, until it prevails. Suppose nine ounces will not yet make an equilibrium, but ten ounces exceeds it; leaving the nine on, by moving one along the arm I seek for the equilibrium, which I find where the ounce comes to 47, so that the action required will be 947 in value.

To perform Addition—Apply the numbers given separately to one arm, and find the value of the action, as above directed, (see 3d sentence,) on the other arm.

Examples—34, 54, 268, 407, 45, 65, is to be added together.

I add these numbers separately to one arm, and find by trial that 873 is the number required.

Subtraction—From the sum of 567 and 258 take the sum of 489 and 56. First apply the first numbers to one arm, and then the other numbers to the other arm, and seek the value by finding an equilibrium, which I find to be 280, the difference.

Multiplication—Multiply 67 by 15. Hang the number 15 at the 67th division, and find the value as above, which I find to be 1005, the product.

Division—Divide 1005 by 15. Apply the dividend to the balance, and moving the weight 15 along the beam to find an equilibrium, which will be at the 67th division, the quotient.

The *Rule of Three* is performed by multiplication and division; but by this machine one operation is sufficient: 77 : 132 :: 63 being given, a fourth number proportional is required. Apply 133 and two decimal parts to the 63d division, (that is, I apply a weight equal to 132 to the 63d division;) then to the 77th division of the other arm I apply a weight which I change until I have the equilibrium; by thus trying, I find that a weight of 10 ounces and 8 decimal parts is required, which shows the number sought to be 108, the answer.

A B is the balance, whose arms each way are two feet long, and each divided into 100 parts, (see figure); *p g* are brass weights of one ounce each; L is a scale suspended by cords, which, with cords and all, should weigh just one ounce, and other weights as may be needed.

C is a thumb-piece to suspend the balance by, made with a joint like a common scale beam. The above may be properly called *Mechanical Arithmetic.*

S. A.

[For the New-York Farmer.]

To set out the Holes in the Circles of the Index to a Machine for Cutting the Teeth in Geer Wheels.

Rule. Take several convenient numbers for a circle that is most used, and find the least common multiple of them, by the rule laid down in Pike's Arithmetic, page 69.

Example 1. We will select for the first circle the numbers 12, 16, 20, and 24.

4)12 . 16 . 20 . 24
3)3 . 4 . 5 . 6
2)1 . 4 . 5 . 2
1 . 2 . 5 . 1 = 240

Example 2. We will next select for the second circle 10, 15, 21, 25, and 30.

5)10 . 15 . 21 . 25 . 30
3)2. 3 . 21 . 5 . 6
2)2 . 1 . 7 . 5 . 2
1 . 1 . 7 . 5 . 1 = 1050

2d circle.

Example 3. For third circle, 40, 60, 80, and 100.

10)40 . 60 . 80 . 100
4)4 . 6 . 8 . 10
2)1 . 6 . 2 . 10
1 . 3 . 1 . 5 = 1200

for 3d circle, &c.

By the above rule, I have calculated the holes for several circles, which are as follows:

1st, A circle of 240 holes will cut 120, 80, 60, 48, 40, 30, 24, 20, 15, and 12 teeth.
2d, A circle of 144 holes will cut 144, 72, 48, 36, 24, 18, 16, and 12 teeth.
3d, A circle of 200 holes will cut 200, 100, 50, 40, 25, and 20 teeth.
4th, A circle of 72 holes will cut 72, 36, 24, 18, 12, 9, 8, and 6 teeth.
5th, A circle of 132 holes will cut 132, 66, 44, 33, 22, and 11 teeth.

Which is the most that is in common use.

S. A.

Six Weeks' Ramble in the Northern Part of the State of New-York. By S. B. [For the New-York Farmer, and American Gardener's Magazine.] Continued from page 296.

Notwithstanding the goodness of the road, however, we had certainly rather a gloomy morning's ride. Pinched with excessive cold and wrapped in darkness, increased by the trees branching over us on each side, and just rendered visible by the coach lamps, which, throwing a dismal glimmer on each side of the way, served to show the dark recesses among the wild and tangled shrubbery, and the shapeless trunks of trees, like dancing ghosts to more frightful advantage. No dwelling of any human being, that we could perceive along the road, except one, which probably ranked as a tavern, as the driver stopped there to water his horses, but which afforded no inducement to any one in the coach to venture out of its dreary enclosure. The only comfort we enjoyed was in patience, sweetened with the anticipation of a warm fire and a good breakfast, when by the return of day-light, as we were told, we should arrive at the village of Duerville. When the long wished-for day-light began to dawn, every eye was strained in hopes to catch a glimpse of the gleaming spires and painted dwellings of the village. When, oh! reader, let me insult your mind with no comment, but tell you briefly, that when the coachman announced the destined stopping place, and with all the power of our benumbed limbs and stiffened joints we alighted upon the frozen foundation of earth and rocks, instead of finding ourselves in the centre of the village, behold we were only on the front side of it; for the *hotel de ville!* which we were about to enter, which was a regular built log-house, with a barn and some other appendages for the accommodation of four-footed travellers, were the only specimens of human architecture in the village of Duerville.

But who can account for the frolics of Fortune, or enumerate the wonderful changes which chequer the scene-shifting drama of human life? What though the anticipated village had vanished, and left us shivering and hungry, before a log edifice, in the midst of the most dismal wilderness I had ever seen; it was too cold to stand where we were, and either curiosity or the now forlorn hope of finding comfortable refreshment led us simultaneously and silently to the inside of this unpromising shelter. On entering, it was mutually evident to us all that we had made three important discoveries; the first was a roaring, flaming and glowing pile of combustion; the second, that mine host of the inn was a noble spirited, good natured soul, or, as they say down east, "He was nobody's fool"; and the third was, there was a partition, latitudinally across this comfortable mansion, which divided it into two apartments, in one of which our ears informed our stomachs that provision was being made for their comfort. Our condition was now rapidly mending. Some of us, who had not signed the obligation of total abstinence, and who thought the sufferings of the morning entitled them to a small libation from the hoard of Bacchus, said that "The Cognac and the Madeira of the good host need not be ashamed to show themselves in any part of Broadway." But when the wicket door, "*just opening with a latch,*" showed our breakfast smoking on the table, surrounded by the mother and her rosy cheeked daughters—avaunt all metaphor, the subject scorns it! and I solemnly declare, that, as far as I can rely on my own candor, in all my travels, and they have not been few nor limited, independently of my excited appetite, I never saw a meal, which, for well chosen variety, profusion of quantity, and exquisiteness of cooking, surpassed the one now before us. I shall never again think of choice eating, and the enjoyment of a warm fire after long exposure in a severe cold morning, but the scenery of the log tavern at Duerville will appear fresh before me.

This place is about the summit level of the tract over which the military road passes, and near the northern termination of the dismal and craggy ridge of broken rock which extends to the south-west through parts of several counties, and ends gradually as it approaches the Mohawk. The land, though rough, broken, and somewhat rocky, is as good as can be expected in such a situation. The soil, as far as I could discover, consists of a blackish gravel, and I should think is congenial to the growth of grass; for wherever I could see the ground in any little opening among the trees and wild brushwood, it appeared covered with dry grass of considerable length, and I have no doubt, with clearing and proper cultivation, would make good dairy farms.

After breakfast, our driver informed us that we could no longer enjoy the "*social sweets*" of the log tavern; and we immediately, after settling our bills and leaving grateful assurances of our best wishes, encoached ourselves and transferred our anticipations of the next refreshments to the village of Chataugua. Although it was now day-light, it was too cold to open our coach windows to feast our eyes on the beautiful scenery we were passing through; and as I had no time to stop to draw sketches of the few log houses, or rather log cabins, of which we could now and then catch a glimpse, I cannot embellish my narrative with appropriate engravings, and must, therefore, refer my reader to his own imagination; but would remind him or her, that before several of these mansions of sweet retirement, we saw something which in form resembled the skeleton of a cow covered with hair, but which hair generally pointed in a contrary direction from the hair on that most valuable domestic animal. But whatever the thing was, it was evident from its shivering motion that it had animal life. But as the reader, if I do not get him into more pleasant quarters soon, will doubtless leave me to my own reflections where I am, if he will have the patience to stop with me and my fellow travellers a few minutes, while we warm ourselves a little at Chataugua, I will then proceed on with him, and try to gratify him before another night overtakes us.

The village of Chataugua may contain one or two mansion houses more than that of Duerville; at any rate, it cannot contain less, if it contains any.

Our next post of destination was Malone, which was 50 miles from where we started in the morning. The appearance of the country, both by nature and art, seemed gradually to improve after leaving Chataugua. It was smoother at least, if not a better soil, and began to exhibit more frequent patches of cultivation, interspersed with here and there a framed house. The land here, I was told, could be bought for about three dollars an acre, which, considering the goodness of the soil and the short distance from the St. Lawrence, which will always ensure a market, together with the abundance and good quality of the materials for building and fencing, I should think would make it as good a location for an industrious farmer as any other.

About half an hour before sunset we reached Malone, and it surpassed my anticiptions almost as much as Duerville had fallen short of them. Judging from the past, I expected to find it containing at the most eight or ten log houses, instead of which I found it a handsome, airy and pleasant village, and I do not recellect that there was a log house within sight of it. The houses were handsomely built, chiefly of stone and of wood, and I believe some of brick. It contained one or two churches and a very fine cotton factory, and some other hydraulic manufacturing establishments. The Salmon river runs through the centre, and is here just large enough for a convenient, but never failing mill stream. The main road, which is also the principal street of the village, crosses it by a large and well built arched stone bridge, and immediately below this bridge is the cotton factory, built and owned by Col. Stearns. This factory would do credit to any place and any builder; but when we consider where it stands, in a little, lonely spot, surrounded by a wilderness, from which it seems to have been reclaimed almost without the knowledge of the world—to see an establishment of this kind, of more than usual neatness and respectability, could not fail to excite agreeable surprise in the mind of a traveller. I was very politely invited by the proprietor to examine this factory minutely, which I felt the more interest in doing, having myself been formerly engaged in the cotton manufacturing business. It contained, as nearly as I can now recollect, about 2000 spindles, with a proportion of looms. The machinery was all, or nearly all, built on the spot, and will bear comparison in every particular with any I have ever seen. In short, the whole establishment, both for external and internal beauty, judicious arrangement and neat execution, equals, and in moral government, surpasses any thing of the kind I have visited. What is still more remarkable, Col.

Stearns, without any previous acquaintance with the business, or any knowledge but what he acquired as the business progressed, was his own planner and engineer. He had gained his property by industrious attention to merchandize in the village, and had never attended to any thing else. I cannot, in justice to my feelings, omit to remark, that if I was less astonished, I was no less pleased with the hospitalities of his house, of which I was kindly invited to partake, and with the society of his interesting family. There is also a handsome academy in this village, which I was told was well supported.

I will notice one more circumstance previously to leaving this interesting village. The stage-house and principal tavern is kept by a Mr. Thompson. It is a genteel, respectable, and well conducted hotel, but has no farther claim to notice that I know of. But the history of Mr. T. himself, as it was communicated to me, by a respectable friend and neighbor of his, could I give it as I heard it, would be a treat for every lover of interesting biography, and a valuable lesson against despair, under any circumstances. I think, but am not certain, my informant told me Mr. T. was born in Ireland. In the late war with Great Britian, he entered our army with all the warmth of patriotic ardor; and after displaying unequivocal ma. of more than common bravery, was taken prisoner in Canada. He was soon pa'ed, with a number of fellow prisoners, to e marched to Halifax. But having no relish for such a practical lesson in pedestrianism, he determined to incur the hazard of at least trying to effect a more speedy discharge, by means of *leg bail*. Having communicated the design to a fellow prisoner, in whom he had entire confidence, and who consented to share the hazard with him, they had the adroitness to effect their escape at the first convenient stopping place, and to find a hiding place, where they were not discovered. They found means to subsist a day or two by venturing out of their concealment in the dead of night; but as this was no safe continuing place, they determined to better their life, or end it. They found a small skiff on the lake shore, in which they embarked, under cover of extreme darkness. As nearly as I can recollect the story, they landed on a island, when a storm drove off their skiff; I have forgotten what became of his comrade, but Mr. T. remained there, without food, until he was reduced to a skeleton, and until the last equivocal signs of vitality were scarcely visible. He was then by some means discovered, and taken ashore on this side of the lake. With all due attention it was some time before he could be considered out of immediate danger; but his former health and strength could never be expected. After some time he gained sufficient strength to ride slowly on horse back, and still gaining a little, he undertook to carry a small mail, on the new military road, from Ogdensburgh, or Canton, to Plattsburg. This he could perform once a week riding slowly, and his health and strength but slowly improving, while the size of the mail was increasing; he managed by prudent savings to obtain a one horse waggon. His faithfulness and diligence enabled him, as the mail still grew larger, to add another horse to his team. In time, his wagon became a coach, and once a week became twice a week, and his two horses became four, which he still drove himself, though he had never before tried the experiment of driving four in hand. He now owns the entire line, a distance of about 100 miles, and running each way three times a week, and requiring about 50 horses; and better horses and coaches I have not often seen on any line: and what is no less remarkable, I was told, he acts upon a fixed principle, to owe nothing to any one. Such an example is worth more than volumes of precepts. It shows the utter folly of desparing under almost any possible circumstances. Mr. Thompson was in a foreign country,—no relatives around him, and no friends but those procured by his honest spirit, and by sympathy for his sufferings. His flesh was emaciated from his bones—his vigorous constitution forever destroyed, and nothing but the precarious existence of the vital spark between him and the grave. Still he lives, and is a man of wealth, beloved and respected; and useful to himself and his adopted country. Henceforward, let no young man say or think he cannot rise in the world, because he is poor.

After remaining at Malone two days, I took my departure in the stage, and arrived at Canton in the afternoon. The road, through this distance, exhibited nothing remarkable. The face of the country is not hilly, but diversified with moderate undulations. The soil tolerably good, but most of it in the roughest and most ragged state of uncultivated nature. The timber, all sorts, common to the country.

S. B.

NEW-YORK FARMER.

NOVEMBER 1, 1835.

THE ART OF PRINTING.—The folllowing article, in relation to the discovery and progress of the art of printing, cannot but be interesting to most of our readers.

According to it, it is 405 years since the art of printing was first discovered—the progress of the art was, however, almost imperceptible for nearly a century—and even until within the last fifty years its progress was very gradual.

At the present time, however, it would seem to be making rapid strides. *Ten years* ago, 24 to 2,800 pages per hour, of this Magazine, would have been a great day's work for a man and boy—whereas, with the present facilities and improvements, we can *now* print, with one man and *two* boys, 24 to 32 *thousand* pages in the same time, with much less labor and fatigue.

We shall, at an early period, give a more minute description of the improvements by which this wonderful performance is effected. At present we will merely observe, that it is done on a registering machine, which prints *both* sides of the sheet before it leaves the press, and which is driven by a *Rotary Steam Engine*, which makes more than *five thousand revolutions per minute!*

THE ART OF PRINTING.—On the tenth and eleventh days of July, it is customary at Haarlem, occasionally to celebrate a festival in commemoration of the invention of typographical printing: alledged to have been made by John Lawrens Koster of that place in the year 1430. Although it is certain that the Chinese and Japanese, about a thousand years before the Christian era, understood and practised the art of printing from carved wooden tables, (called technically xylograhic printing,) yet it is equally certain that the Europeans had no knowledge of the existence of this art among the Chinese and Japanese until the beginning of the sixteenth century. It was not until about the year 1498, that Vasco de Gama discovered the route to the East Indies by sea; and it was from the navigators who succeeded him, that the first correct ideas of the state of the arts in China were obtained.

The honor of having given birth to typographical printing, or printing with *moveable* types, is claimed by three cities, Haarlem, Strasburgh and Mentz. It is perhaps not very material to decide between them. The Dutch consider the question proved beyond dispute in favor of Koster. Many of Koster's impressions have been discovered, and are now to be seen: and Scheltema and Konings, have, it is thought, shown conclusively, as late as 1823, that these impressions were made with *moveable types*.

It is now 405 years since Koster's genius produced this useful art. What wonders has it not already accomplished, and does it not promise to accomplish! The press has been called, and not inaptly, "the lever which moves the world." What revolutions in the political and moral world have not been effected by it! With it is intimately connected, and to it do the free of all nations, in a greater or less degree, owe the liberties and privileges they enjoy. The rich legacy left by John Lawrens Koster has descended not only to the Hollanders, but to the inhabitants of the whole civilized world! civilized, did we say; nay, even the uncivilized nations of the earth are beginning to reap its benefits.

We copy the following remarks from a little work on the fine and useful arts, lately published by M. S. Perry, M. D. We think they will prove interesting to those of our readers who are not acquainted with the facts here detailed. "Koster, called also Lawrentius, went to walk in a wood near the city, as was the custom of the opulent class; once, when there, he began to cut some letters upon the rind of a beach tree, which for fancy's sake he afterwards set and arranged in order, and put the words upon paper with their *heels* up, and so impressed and printed on paper one or two copies, as specimens for his grandchildren to follow in writing. This having happily succeeded, he meditated greater things, as he was a man of ingenuity and judgment; and, first of all, he invented, with his son-in-law Thomas Pieter, a more glutinous ink, because he found the common ink would sink and spread. And then he formed whole pages of wood, with letters cut upon them. Laurentius was a man of fortune, and held a lucrative office under government. He commenced printing with wooden blocks or

plates, on which he engraved or carved the words for several small volumes. He employed several workmen, among whom were John Geinsfleiche. Geinsfleiche communicated the art to his younger brother, named Gutenberg, an ingenious mechanic, who lived at Strasburgh. After having stolen a part of his master's apparatus, Geinsfleiche went to Mentz, his native place, and commenced printing about the year 1440. He was assisted with money at first by John Fust, Faust,or Faustus; and afterwards he entered into partnership with him and his brother Gutenberg.

The two brothers united their endeavors to invent a font of metal types with cut faces; they succeeded after many years, and in 1450 a part of the Bible appeared from their press. The partnership between the brothers and Faust was dissolved in 1455. Faust continued the business, and took one of his servants, Peter Schoeffer, into partnership. In 1556, Schoeffer completed the invention of metallic types by casting them with faces; he likewise cut matrices for the whole alphabet, with which Faust was so much pleased that he gave him his only daughter in marriage.

The story of the Devil and Dr. Faustus originated from the following circumstance. Faust had printed a beautiful edition of the Bible, which was an exact imitation of the best manuscript. He took a number and went to Paris, where he at first sold them for six and then for five hundred crowns each. At last he lowered his price to thirty crowns each, and all Paris was perplexed at the number of copies produced, and their exact uniformity. They accordingly believed that Faust had made a league with the Devil, and he was accused of being a magician.

A knowledge of the art was soon obtained in Rome, and the Roman type was introduced in 1467.

In the reign of Henry the Sixth, R. Tourneur and William Caxton went to Haarlem to learn the art. These gentlemen persuaded Corsellis, an under workman, to go to England, and a press was set up at Oxford in the year 1471. The first book printed in the English language was the History of Troy, translated from the French by William Caxton. Ireland was one of the last European countries into which the art of printing was introduced; the first work executed there was in 1551. Printing was practised in Mexico about the year 1569.—The first printing press in the United States was established by Stephen Daye, at Cambridge, in 1639; William Bradford commenced printing in Philadelphia in 1687."

LANDS SOLD FOR TAXES.—In obedience to a resolution of the last Legislature, the Comptroller made a report giving a statement of all the sales of lands for taxes not heretofore reported; also the sales of lands for arrears of quit rents in 1826. This statement gives the location and description of the lot, the number of acres sold, the amount for which sold, the name of the purchaser, and the name of the person to whom conveyed. The report makes a volume of over 700 pages of the size of the legislative documents; and an extra number of copies have been printed sufficient to furnish the clerk of each town and ward with one copy. These have been forwarded to the treasurers of the several counties in the state, and each town clerk will be furnished with a copy by calling on the treasurer of his county.

In 1826, a similar report was made to the legislature, which may be referred to, (on application at the county clerk's office,) being document E. of the appendix, in the Assembly Journals of 1826.

These two reports contain lists of all the lands which have been sold for taxes in this state, and which have not been redeemed.

Persons who are interested in lands would do well to refer to these reports, and ascertain whether the lands in which they are interested have been affected by any of the Comptroller's sales. Lands are sometimes assessed and returned erroneously, and in such cases the payment of taxes annually is not sufficient to protect the land from sale: To guard against errors hereafter, every owner of lands should give the assessors the correct number and description of his lands, and as far as practicable should examine the assessment roll and ascertain for himself whether the right number and description is given to his lands in the assessment roll: if he finds one of his lots omitted in the list of resident assessments, he may be assured that although he is not called upon for the tax by the town collectors, the lot will be returned as non-resident, and in four or five years afterwards will be sold for taxes. Cases of this kind have frequently occurred.

To facilitate examinations, an index to the patents has been prepared and is annexed to the Comptroller's reports before referred to. In making examinations search ought to be made in the index, under every title by which a tract is known, *although found in one or more places under the title first searched for:* because tracts are sometimes returned to the Comptroller by one of their titles, and sometimes by another.

☞ Lands sold for taxes in 1834, may be redeemed until the 21st day of April, 1836, and the several editors in the State might essentially serve the interests of their readers by calling attention, in an editorial article, to the Comptroller's notice on this subject, which is directed to be published in every paper in the State.—[Albany Argus.]

ANATOMIZED LEAVES.—The following observation on these beautiful exemplifications of the exquisite structure of leaves of vegetables, we copy from Maund's Botanic Garden, No. 125: "The exquisitely beautiful structure of the vascular system of leaves can be duly appreciated by those only who have seen specimens properly prepared. Marcus Aurelius Severinus, who published in 1645 a description of the skeleton leaf of cactus opuntia, is said to have been the first to adopt an artificial method of preparing these interesting objects of vegetable structure. Although we have seen directions for effecting this, we could not, confidently, publish them; but by the favor of W. T. Iliff, Esq., of Newington, we are enabled to gratify our readers. He has obligingly sent us beautiful specimens of leaves, completely cleared of their cuticle and pulpy matter, exhibiting the most exquisite network of vessels that can be imagined; and also the following directions for preparing them. He says, "many individuals who have seen the fibrous structure of vegetables have expressed much admiration at their beauty, and regret at the difficulty attending the preparation of the same. I am induced, therefore, to state to your readers, that the difficulty rests with themselves. If the seed vessel of the datura stramonium or hyoscyamus niger; the calyx of the physallis alkekengi, or nicandria physaloides, are put in water, and allowed to remain, without an exchange of water, until decomposition is carried to the requisite extent, they may be freed from their cuticle, and the pulpy matter; and after macerating them a short time in fresh clear water, they may be bleached by immersion in a diluted solution of chloride of lime, say one-sixth of the chloride to five sixths of water. They must be well washed from this fluid, when whitened sufficiently; and quickly dried, either before a fire, or in the sun. Care must be taken not to allow the destructive process to be carried too far, or that fibrous structure will become injured; nor allow the preparations to remain too long in the chloride, or injury will also arise. In selecting leaves for this purpose, those with the strongest fibre should be preferred. Their fibrous parts, and also the seed vessels and calyces alluded to, should be cleared by a camel hair brush, or fine pen, from such portions of cuticle, or pulpy matters, as adhere too strongly to be removed by a small stream of water. The leaves of the ceratoria siliqua, ruscus aculeatus, and ilex, are, with the foregoing, the most easy to prepare. I have tried a variety of other methods, none, however, answers so well as the one I have explained, and therefore I communicate it, without fear of its being attended with difficulty, if properly applied. Some of the specimens may require several months maceration before the preparation can be completed."

[From the Charleston Courier of October 12.]

NEWS FOR THE JOCKIES.—There are on board the British ship *Adam Lodge*, arrived yesterday, eight full blooded English Horses, the property of Wade Hampton, Esq., of this State. These horses were purchased at the last annual King's sale, by Dr. Nott, for Mr. Hampton, under the advice and by the judgment of Tattersall, and one of the best judges of the English Race Horse; and at very high prices. We are happy to state, that by the great care and attention of Mr. Fryer, so advantageously known on our Turf, as a Keeper and Groom, assisted by a Groom from England, they are in fine condition and spirits.

The following are the pedigrees of these Horses, and the knowing Jockies can at once recognize in the various crosses, the best admixture of English blood.

PEDIGREES.

Bay Colt, by Priam, out of Delphine, by Whisker out of Lady, by Comus, out of the Colonel's Dam, by Delphine, Tipple Cider, by King, Fergus, &c.

Bay yearling Filly, by Colonel, out of Fleur de Lis, by Bourbon, out of Rachel, by Stamford, (her dam, young Rachel,) by Volunteer, out of Rachel, (sister to Maid-of-all-work,) &c.

Bay Filly, by Emelius, out of Elizabeth, by Rainbow, (her dam by Beelooina,) by Stamford, out of sister to Silvie, by Mercury, &c.

Bay Filly, by Priam, out of sister to Spermaceti, by Gohanna, (sister to Wanderer,) her dam Catherine, (sister to Colebri,) by Woodpecker, out of Camilla, by Trentham, &c.

Ch. Filly, (for Dr. Nott,) by Waterloo, dam by Comus, out of Colonel, by Phantom, out of Fillagree, by Soothsayer, Web, (sister to Whalebone.)

All the above, bred by his Majesty, and purchased at his annual sale, in May last.

With the above are two brood Mares:—

Emmy, by Magistrate, out of Emmaline, the (dam of Young Phantom, Edmund, Edgar, Edith and Ernest,) by Waxy, her dam Sercery, by Sorcerer, out of Colbea, by Skyscraper, by Woodpecker, &c., Stinted to Camel.

Tears, got by Woful, out of Miss Stephenson, by Scud or Sorcerer, (her dam sister to Petworth,) by Precipitate, Woodpecker, &c.; with a Colt Foal at her foot, by Defence, and stinted to him again.

MODE OF JOINING TWO PIECES OF AMBER.

Two pieces of amber may be very readily united by the following means.

Wet the surfaces that are to be united with a solusion of caustic potash; heat them, and then press them together; the two pieces will unite so perfectly, that no trace of any joint can be perceived. Thus, with small pieces of amber, compact masses may be easily formed, which is an advantage in the arts.—[Journal Franklin Institute.]

NEW METALLIC CEMENT.—A new metallic cement, for which a patent has been taken out, consists of powdered scoria from the copper works, mixed with stone and lime. It sets rapidly, and takes a fine metallic polish. It is now being used by Messrs. Harrison, in a large building intended for an inn, at the south-west corner of London Bridge. This cement, unlike all other kinds except Frost's, is sold mixed up ready for use. The price is 9*d.* per bushel. If the scoria, in a state of powder, were sold by itself compressed in casks, it appears to us that it would form a very desirable cement for exportation. It may be laid on in coats as thin as the fourth of an inch, but it has not been a sufficiently long time in use to determine to what extent it will crack.—[Lon. Mec. Mag.

WHO IS A GENTLEMAN?—Coleridge, in his 'Table Talk,' thus describes a gentleman. It is a vivid delineation.

"Whoever is open, generous, and true; whoever is of humane and affable demeanor; whoever is honorable in himself, and candid in his judgment of others, and requires no law but his word to make and fulfill an engagement; such a man is a gentleman, and such a man may be found among the tillers of the earth."

[*From No. 5, of "The Silkworm."*]

THE SILK BUSINESS.

The whole subject of the silk business naturally presents itself under two distinct heads: 1st, The production of the raw material; 2d, The manufacturing it into the various fabrics, in which it is presented to the public for use.

The first of these divisions is as naturally subdivided into 3 distinct parts or separate operations: 1st, the cultivation of the mulberry tree; 2d, hatching, feeding and tending the silkworms; 3d, gathering, sorting and reeling the cocoons, and preparing the silk for market or for manufacturing.

The first of these subdivisions has been treated, perhaps, sufficiently in the first number of the "Silkworm"; and the second, that of feeding, attending and managing the worms, has occupied chiefly the second and third numbers. The fourth was devoted to some slight recapitulations of the subject, and to miscellaneous remarks and selections. In this number I shall commence the third subdivision of the first branch, *the gathering and sorting the cocoons, and the reeling and preparing the silk for market or for manufacturing.*

GATHERING AND SORTING THE COCOONS.

In small families, where small parcels of silk are made, intended for their own private use, directions for gathering and sorting the cocoons will not, perhaps, be of any essential service, as each family will probably get along well enough, in their own way. But, whenever silk is intended for sale, either in the cocoons or reeled, or is produced in connection with any regular manufacturing establishment, it will be of primary importance to have the whole business conducted in a systematic manner; as, in the first place, the articles will come into market, with a regular and established character, and leave no room for disputes about the quality, or for imposition on the part of the buyer or seller; in the second place, where the silk growing is connected with a manufacturing establishment, it will conduce much to the benefit of the subsequent operations, to have the silk come into the work in a systematic and regular form.

When the cocoons are completed by the worms, they are to be gathered and stripped of the floss, which consists of broken and irregular fibres of silk, by which the worm attaches his work to the twigs, or to whatever place he is about to fasten his cocoon; forming a kind of frame work, or outside covering, previously to continuous spinning. This floss does not admit of winding, but is of use, as will be hereafter shown. The way to take it off is, to open one end, and thrust out the more solid part of the cocoon. The loose fibres still adhering to the cocoon must then be stripped off and placed with the floss.

When the cocoons are gathered and stripped of the floss and loose fibres, they are then to be sorted. The manner of this operation will vary according to the general quality of the parcel, especially their uniformity. If the worms are all of one uniform stock, and have remained vigorous and healthy, the cocoons will be in a nearly corresponding degree uniform, though still there will be some variety; and whether they are intended to be reeled by the person who raised them, or sold in their present state, it will be best to assort them completely, and keep each particular kind by itself.

I would advise first to separate them according to their color. The principal distinctions of color are white and yellow. The white or pale cocoons are said to take the best white or pale blue; and they lose less in winding, because they are less gummy than the yellow.

In the next place, they ought to be sorted into two or three parcels, according to their hardness. In a large parcel, where they differ much in hardness, it will be well to make three parcels. The advantage of this sorting will be found in reeling. The hard cocoons require greater heat, and, perhaps, longer continuance in it than the soft. If they are both put in the hot water together, and remain till the hardest will wind freely, the other will be too much softened, and come off in bunches; and if wound as soon as the softest is ready, then the hard ones will pull, and the thread containing the two fibres will not be smooth, because the fibres are of unequal tension, and it will have less strength for the same reason.

Besides these distinctions, there will be found in a large parcel of cocoons several other distinct peculiarities, which, in large filiatures, it is necessary to separate, and keep each by itself, as

1, The *good*—those which are perfectly formed, and without any spots or blemishes.

2, *Pointed cocoons*—one of the ends protrudes in a kind of point. These afford but little good silk, as it will run off in pieces.

3, *Cacalons.*—These are larger than the rest, but are soft, and of course do not yield any more, if so much silk.

4, *Double cocoons*, or *dupions*—these are made by 2 and sometimes 3 worms winding together. They are of less value than the others, because they are coarser, and require more care and produce more waste in winding.

5, *Saufflons*—are light and imperfect cocoons, but partly formed; sometimes so thin as to be transparent.

6, *Perforated cocoons*—those which have a hole in the end, from which the moth has escaped. The two last cannot be wound.

7, The cocoons in which the worm dies after the spinning is completed. These are technically called *calcined cocoons.* They are equal in value to the first, and even produce more silk in proportion to their weight.

There are some other distinctions observed in large filiatures, but they are not essential. It will be evident to any person, that all spots and discolorations, and any other imperfections, lessen the value of the cocoons, and that one single bad cocoon in a lot offered for sale will injure the credit of the lot for more than its value.

When the cocoons are assorted for sale, it is not necessary, among the good cocoons, to pay any attention to the different degrees of hardness, as that is naturally the business of the purchasers.

The next operation will be to select the cocoons that are intended for eggs. This selection is to be made either from the good cocoons or the dupions. The latter contain as likely and healthy chrysalides as the former, and some have given them the preference for seed, supposing them always to contain one male and one female. This is, however, a mistake; as on experiment, it has been found, on examining twenty double cocoons, that seven only contained each a male and female, seven contained two males, and six two females, each. But as they are equally as good as the single for seed, and are of less value otherwise, they are best appropriated to that purpose. It is desirable to have an equal number of males and females; but, though there are some tokens by which those experienced can sometimes decide correctly, no positive dependence can be placed on them. It is said, the small cocoons, rather sharp at both ends and depressed in the middle, generally contain males; the more round, full cocoon, without any ring or depression in the middle, usually contain the female. It will be best to select a few over, rather than to fall short.

By shaking the cocoon close to the ear, it can generally be

ascertained whether the chrysalides are alive; if dead, it will rattle with a sharp sound, if alive, with a more muffled sound.

KILLING THE CHRYSALIDES.

When the temperature is about that of summer heat, in about fifteen days after the worm has finished spinning and becomes a chrysalis, it perforates a hole in the cocoon, and comes out a moth. This may be retarded somewhat by keeping them in a cool place. Sauvage states, that he has kept them from coming out a month by placing them in a vault. Whatever quantity of silk can be wound before the chrysalis commences making his hole, there is an advantage in doing it, as the silk winds easier then than afterwards. But in all those cocoons which cannot be wound within eight or ten days, the chrysalis must be killed. This is effected in various ways. The method longest and probably most extensively in use, is baking them.

To effect this, the cocoons are put in flat baskets, paper boxes, bandbox covers, or any thing suitable to hold them, and being spread out a few inches deep, and covered with paper to guard them from dust or other injury, put them in an oven, at the usual heat, when the bread is drawn out, and they will be killed in half an hour. The heat should be about that of boiling water, or 212, but should by no means be sufficient to produce any scorching effect.

Some writers direct to place the baskets or boxes containing the cocoons, one upon another, after they are drawn from the oven, and cover them with a woollen rug, for some five or six hours; but this cannot be necessary, if the chrysalides are already killed by the heat of the oven, and it does not appear likely that any will survive it. It will be better, however, that some few should remain alive, than that the heat should be sufficient to scorch the silk.

Another method of killing or stiffing the chrysalides, as it is called, is by steam. It is not decided which method is preferable, and both are in practice.

"The academy of Nismes deemed it so important to ascertain the best mode of killing the chrysalis, as to institute a set of experiments on the subject, in the year 1809; and they came to the conclusion, that the steam of hot water effected the object best, without injuring the quality of the silk. Six ounces of white cocoons were submitted to the steam of boiling water for half an hour, furnished with a safety valve, when the cocoons were taken out, and the chrysalides were found dead." An elaborate description of a furnace and apparatus for steaming the cocoons is given in the communication to Congress on the subject, by the Secretary of the Treasury; but, I think, it is quite too complex, and, perhaps, too expensive for common use. Mr. Gay, who, I think, is probably making more valuable improvements in the silk business than have been effected by any other individual, has a plan for killing the chrysalides by the heat of steam, without suffering the steam to come in contact with them. This I shall endeavor to give, in such form as to be perfectly intelligible, in the next number, previous to which I shall visit Mr. Gay's establishment, and examine it in operation. At present I can only say, from Mr. G.'s description, it appears simple and cheap; and its importance must be evident, as injuries are liable to take place in baking and in steaming, with the steam in contact with the cocoons, the silk must be rendered harder to reel by the adhesiveness of the gum.

The cocoons lose in curing about twenty-five per cent. of their weight. After being thus cured, they are ready for sale, or for reeling; and in either case should be kept in a clean, dry place.

We now come to the most critical and delicate manual operation in the whole process of producing silk, as well as that which requires the most time, which is that of *reeling*. If the silk is intended for market in the raw state, especially for exportation, the operation of reeling will require a degree of skill which can scarcely be obtained without considerable experience and some instructions. It will also require an apparatus, which will cost more or less, according to the extent to which it is intended to be carried. But this ought to throw no discouragement in the way. The skill can soon be acquired, and the apparatus, when obtained, will soon pay for itself.

The quality of silk depends so much upon the manner of reeling, as to vary its price in a foreign market, probably 100 per cent., and even in that which comes from the hands of good and skilful reelers there will be a perceptible difference. But I have no doubt but it may be as well reeled by the domestic fireside, as in the most extensive filiature, with all its complicate and expensive apparatus.

The reeling is not like the feeding the worms, the hurried business of a short season; but may be done at leisure and upon a very small scale. It may be begun and progressed in, some times, by way of experience, upon the common domestic reel, without any additional expenditure. For all domestic purposes, the common family reel, and a deep tin pan set on a common clay or iron furnace, will answer every purpose, and with these any ingenious female may acquire such a practical acquaintance with the nature of the cocoons, and with the rendering off the silk, as to require but very little instruction afterward to qualify her as a reeler for any market.

The instructions given by Mr. Cobb, in his excellent Manual for domestic reeling, can scarcely be improved upon, unless it should be by some radical improvement in the entire system of winding, which should supercede the reel altogether; but such an improvement has been invented, and adopted by Mr. Gay, which I think must advance the silk interest more than has ever been done before, at a single step. But as some little time must elapse before Mr. G.'s plan can get into general use, I shall here give Mr. Cobb's instructions, in his own words, and in the next number I shall prepare to give Mr. G.'s entire system, with such instructions, aided by cuts, as will enable any person to adopt it.

Mr. C. says, "The reeling of silk from the cocoons requires skill, practice, and experience. But let not those who undertake it be easily discouraged: perseverance and attention, for a short season, will enable them to become expert at the business, although their first efforts may seem discouraging."

"The following instructions for reeling silk I have found, from practical experience of several years, in my own family, to be useful. They are chiefly extracted from the Manual published by authority of Congress."

"The reeling may be done at any season, but best in dry weather; it may be carried on in the dwelling house, or in a shed, or other convenient out building.

"The softest water should be chosen for soaking the cocoons. The proper temparature cannot be ascertained, owing to the different composition of the silk. It is as well to raise it to near the boiling point; and then, if necessary to lower it, cold water may be added. The soft or satiny cocoons require water less heated than the others. If too hot water be used, they furze out in winding or unwinding. The dupions, or double cocoons, require the hottest water. The fire under the basin may be lessened or increased, as occasion may require; a little attention will soon enable the person who has the management of the basin, to preserve the water at the proper degree of heat. The reeling is effected by the use of a silk reel, and a basin of

water set over a moderate fire in a small furnace. The person charged with the management of the cocoons in the basin, must be provided with a small whisk of broomcorn, or birch twigs, cut sharp at the points; and being seated behind the basin, previously filled with hot soft water, and placed upon a furnace, containing burning charcoal, she must throw into the water a handful of the cocoons, and press them gently under the water, for two or three minutes, in order to soften the gum of the silk, and thereby loosen the ends of the filaments. She is then to stir with the end of the whisk, as lightly as possible, until one or more of the fibres or filaments adhere to it, and laying aside the whisk, she is to draw the filament towards her, until it come off clean from the floss which always surrounds the cocoon, and the fine silk begins to appear. Then breaking off the thread, and collecting the floss first taken off, she must put it aside. The whisk is then to be applied again to get hold of the finer fibres, and again, until a sufficient number are procured to form the thread of silk required to be wound off. This done, she is to unite a number of fibres, according to the fineness of the intended thread, and deliver the compound thread to the reeler, who puts it through the guides; another is in like manner to be prepared, and passed through the other guides, when two skeins are to be wound, and they may be crossed; the threads are then raised forward, and made fast to the arms of the reel. Both threads being fastened to the reel, it is to be turned, with a regular even motion at first, slowly, until the threads are found to run freely and easily; for it will happen that some of the ends which were taken to compose the thread were false, because that in taking off the floss there may be two or three breaches made in the beginning of the fibres, which in winding will soon end, and must be added anew to make up the number designed for the thread."

"It is proper, therefore, in the beginning of the thread, to put a few more cocoons than it is intended to continue, as they will soon be reduced to the proper number. The crossing of the threads is considered an improvement, though it is sometimes reeled without crossing."

"As soon as the pods begin to give the threads freely, the reel is turned with a quicker motion. If the pods leap up often to the guide, the reel must be slackened, and the spinner may let the thread pass between the thumb and finger, before it reaches the guide. If the thread comes off in burrs, it must be turned quicker. The fire may at any time be increased or diminished, as found necessary, that the reel may be allowed a proper motion, which ought to be as quick as possible, without endangering the thread, or hurrying the spinner, so that she cannot add fresh cocoons as fast as the old ones are ended. The quicker the motion of the reel is, the better the silk winds off, and the better the end joins to the thread. One might imagine that the rapidity of the motion might overstrain and break the thread; but from constant experience, it has been found that the thread never breaks from the rapidity of the motion; but on the contrary, the quicker the motion is, the more advantageous it is for winding the silk."

"While the reel is turning, the spinner must constantly add fresh fibres to each thread, as fast as she can find the ends, not waiting till some of the number she began with are ended, because the internal fibres are much thinner than those constituting the outer layers, but must constantly prepare fresh ends, by dipping the whisk among the fresh cocoons, of which such quantity must be occasionally thrown into the basin as will suffice to supply the threads which are reeling, but not more."

"The cocoons thrown in must be often forced under water, that they may be equally soaked, for as they swim with their greater part above water, that part would remain hard and stubborn, while the part which is under water would be too much soaked. Some hot water may be thrown upon them frequently with a brush, and also on the cocoons which are reeling, when they grow dry at the top, and yield their fibres with difficulty. The supplying fresh ends when the cocoons are exhausted or diminished, or the fibres break, is performed by taking one end of a fibre, and throwing it lightly on the one that is winding, and rolling them between the thumb and fingers, or gently pressing them. As often, therefore, as the cocoons are partially wound or the fibres break, fresh ones must be joined to keep up the number requisite, or the proportion; three new ones may be wound and two half wound, or four new ones, and the silk will then be a thread of four to five cocoons. The adroitness in adding fresh ends can only be acquired by practice. The difficulty of keeping the thread even is so great, owing to the increased fineness of the fibre inside, that we do not say, a silk of three, or of four, or of six cocoons, but a silk of three to four, or of four to five, or of six to seven."

"In coarser silk, we do not calculate so nicely, as one cocoon more or less; we say, for example, from twelve to fifteen, from fifteen to twenty cocoons. In beginning a thread of ten cocoons, from sixteen to twenty will sometimes be required to preserve a uniform thread, after a portion of the first layer has been wound off. The quantity of silk which can be reeled in a given time is in proportion to the quickness with which the spinner can add fresh cocoons. Thus, if we suppose that every cocoon will, at a medium, either break or be wound off at the end of every five hundred feet, then, if five such pods are reeled together, one will be wanted to every hundred feet that are reeled; if ten are reeled together, one will be wanted at every fifty feet, and so on. The seldomer cocoons end, or break, the greater number of them can one spinner attend, which shows the advantage of sound cocoons, and of expert management in reeling."

"The cocoons which wind off in part only, and the shells, must not be permitted to remain in the water, as they will obscure and thicken the water, and injure the color and lustre of the silk, which can then be used only for dark colors. The shells should be buried, to prevent their being offensive; as a general rule, the water should be changed as soon as it becomes discolored."

"When the spent cocoons leap upon or adhere to the guide wires, they must be immediately taken away; else, by choking the passage, they will endanger breaking the thread."

"When the reel has remained idle any time, the thread, between the basin and the wires, may be wet, to cause the thread to run easily."

"In winding of the best cocoons, some defective ones will be found among them, which will not wind off, or are full of knobs; these should be taken out of the basin immediately, in order to be wound by themselves."

"The breaking of the fibres is principally owing either to bad cocoons, viz. being ill formed, (as they will be when the worms are disturbed or interrupted during their spinning,) or the fibres may break by improper regulation of the heat in the water: first, when it is not sufficient to make the silk come off easy, or, second, when it is too great and occasions burrs, which may stop at the holes through which the thread runs; cocoons also which have two worms enclosed, will perpetually break; the whole thread may also break by burrs stopping at the holes of the guides, or by the reel being turned by jirks; it may be fastened (or joined,) like the fibres, by laying the parts on one another, and giving them a little twist."

"A sharp fork may be conveniently made use of to draw away the spent cocoons, or such as being nearly spent, stick at their holes in the guides; and as the whisk will frequently take up more ends than are immediately to be added, and as the spinner will sometimes have occasion to employ both her hands, the brush (*whisk,*) may at that time be conveniently hung up by the basin, while the ends which are attached to it remain in the water, and the ends will be in readiness when they are wanted. If the spinner be under the necessity of leaving off work for any length of time, the cocoons should all be raised with a skimming dish out of the water till her return; otherwise, by oversoaking, they would wind off in burrs; but it is best to continue the reeling without interruption, and let fresh, but equally experienced persons, succeed those who are tired. The person who turns the wheel should have an eye to the threads, and to the guide wires through which they pass, that he may apprize the spinner when any thing is wrong; for her eyes will be constantly employed about the cocoons. The reeler may also rectify any thing discovered to be amiss, in those parts of the thread which are near the reel, for one hand will always be unemployed, and a stop may occasionally take place."

"As the heat of the water in the basin will require to be varied, according to the ease or difficulty with which the different sorts of cocoons give of their silk, the spinner should always have some cold water within reach, in order to cool that in the basin quickly, when the silk comes off too easily, and in burrs. The water is also necessary for the woman managing the cocoons, to cool her fingers."

"More fuel should be added to increase the heat quickly, when the cocoons do not give off their silk readily."

"If there should happen to be any sand in the water, the heat causes it to rise to the surface, and fix on the cocoons, the thread of which it will break, as if cut; for this reason, the utmost care should be taken to guard against it, and to remove it. Previously to being boiled (*heated*) the water should be permitted to settle, and the pan must be carefully wiped. If necessary, the basin may be covered while the water is heating."

"When the cocoons are first put into the water, if the silk rises thick upon the brush, or comes up in lumps, it is a sign that the water is too hot; if the thread cannot be caught, the water is too cold. It will be seen, by observing the position of the thread upon the reel, that the different layers do not lie parallel to, nor upon, but across one another. This is owing to the mechanism of the apparatus, and is particularly contrived to effect this object, which is essential to the perfection of the process, and one to which the acknowledged superiority of the Italian silk is to be ascribed. It is effected by the see-saw motion of the distributing rod, which depends upon the relative proportion between the axle and the pulley; without this crossing, the threads, from their gummy nature, would inevitably adhere, and render the subsequent windings and twistings very difficult; this sticking together of the silk is called glazing. But the mechanism above mentioned, of the distributing rod, prevents the threads from lying over each other upon the reel, until after it has made many revolutions, and the former threads have dried. During this time, the exposure of the threads to the air, causes the first layer to be completely dry, and hence, no adhesion between them can take place."

"The effect of the irregularity of the movement caused by the distributing rod, is also to imitate the unraveling of the cocoon, the same method employed by the silk caterpillar in forming it; for it is a fact that the silk fibres of the cocoon are spun in zigzags, like those formed by the silk reel; and consequently the operation of the reel is an imitation of nature, of which, the industry of the caterpillar, instructed by her, is the prototype. Mr. Nouaille says that a woman at Novi (*Italy*) experienced in the business, with a girl to turn the reel and attend to the fire under the cauldron, can, with ease, reel off one pound of silk, consisting of four or five cocoons, of the most perfect quality, in a day. I am credibly informed, that the price of silk, reeled according to the above directions, in Europe, is from four to seven dollars, according to its fineness. Mr. D'Homergen says, a woman may now reel three pounds in a day. Mr. Brown thought he could reel a pound in a day upon my improved reel, but I have never been able to have the finer qualities of silk reeled so rapidly in my family. The silk reeled on my reel sells for $4 50 as it comes from the reel, and some at a higher price. My reel is similar to the Piedmontese reel, with some considerable improvements; it is finished in a much neater style than any I have seen in this country; it is portable, and will be furnished to any one who may apply, for the sum of twenty-five dollars."

"In preparing the dupions, or double cocoons, for windings, more must be put into the basin at once, than of the finest kind. They must be first well cleaned from the floss outside; the water must be boiling hot, and as the silk they yield is of a coarser quality than the other, and has a good deal of floss upon it, the person who turns the reel must take the opportunity, while the one who manages the basin is preparing the cocoons for winding, to clean and pick off the loose silk from that which is on the reel. These make a coarser thread of fifteen to twenty cocoons; and perhaps, as coarse as from forty to fifty cocoons; it is for filling in coarser stuffs, and likewise for sewing silk."

"The satiny cocoons require water only moderately heated. The proper heat will be found by observing the manner in which the silk comes off from the first of them which are put in a basin, and, as already said of cocoons generally, if it come off thick, cold water must be added until the proper temperature be attained. The gum is taken out of the silk by boiling it in soap suds."

WINDING SILK.

By the improved system of winding silk, invented by Mr. Gay, many and important advantages are gained; but still it will not altogether supercede the use of the reel. By his plan the silk is wound on spools from the cocoons. In this state it is not liable to tangle as when in skeins. When once wound in a continuous thread on the spools, it may be kept any length of time, and carried any distance, without injury. It will be in the same state of keeping as the spools of cotton thread, and may always be wound off in the same entire thread as it was wound on.

When the silk is intended to be sold to the manufacturer, or even to the merchant, this is infinitely the safest way in which it can be preserved. When in the skein it is always liable to injuries, either in keeping or in transportation.

If the silk is cultivated near to where it is to be manufactured, the manufacturer can furnish the spools, weighing them as they are delivered out, and deducting the weight of the spools when returned with the silk. If it is to go through several hands, the spools may be made of an exact given weight, and warranted not to weigh more.

The whole process of winding is, by this plan, not only ren-

dered much more simple and easy to learn, but is infinitely more convenient, as it will be done by a little snug machine, which will be no inconvenience at the fireside, while the regular silk reel is much more cumbrous, and would scarcely find room in small dwellings.

But in nearly all cases, where silk is to be manufactured, it will still have to be reeled from these bobbins, or spools, into hanks, or skeins. This, however, is no objection to winding it originally on spools, for the saving and other advantages which result from keeping and preserving the silk on spools, over balances the trouble of the two windings.

In the next number I shall endeavor to give such engravings of the apparatus for each operation, as will enable persons at a distance, if they have any ingenious mechanics near them, to have them correctly made; or if they choose to purchase them, I shall be prepared to furnish them, made in the best style to any order, at least at short notice.

EDITOR.

MORUS MULTICAULIS.

Every day almost presents new and cheering promises of the advantages which may be expected, in the silk business, from the Morus Multicaulis. There seems to be scarcely room left to doubt its ultimate, perfect success in the northern states; but as far north as 40 degrees of latitude, no shadow of doubt rests on the subject.

The following notice of Mr. Sinclair's nursery cannot but be read with deep interest by every one who even contemplates engaging in growing silk. However cheering the prospects to the northern states, (and they are certainly very brilliant,) they are still a little more so to the middle and southern, from east to west. Those states along the Atlantic have not only a larger proportion of light sandy soil, but much of that soil is impoverished by bad husbandry; and such is exactly soil most suitable for the production of silk.

A visiter to Mr. Sinclair's celebrated establishment remarks:

"The beautiful appearance of Mr. Sinclair's nursery of *Morus Multicaulis*, the Chinese, or many-stalked mulberry, is, we confess, beyond our powers of description. There are about 2,000 on one spot, from 6 to 8 feet high, covered with leaves from the earth to the very topmost points of their branches—and such leaves too; nearly as large as a plate; so silky and so exquisitely lovely in their peculiar shade of green. At the distance of a few feet the impression which a view of the orchard makes upon the mind, is most singular, indeed; instead of appearing to be the leaves on the branches of trees, the mind is almost filled with the belief that it beholds a continuous and dense body of the most delightful foliage. If there were nothing else to be seen at Clairmont, this sight alone is worth a ride of many miles to any one who has enthusiasm enough to associate the history of this tree with the incidents probably to be developed by a few years, as connected with the prosperity of many of the states of this republic. For ourself, we can read in those very broad, pendulant, glassy leaves, a portion of history which fills us with feelings which we could not if we would, and would not if we could, describe—we behold in them the elements of union to these states—and in that, our gratitude is complete."

SILK.

The last war with Great Britain taught the Americans one most excellent lesson, viz: to rely upon their own *resources for support*; and the results of this one lesson have been far more useful to us than would have been ten thousand of the most brilliant victories over the mother country. It has resulted in the erection of manufacturing establishments in almost every nook and corner of the middle and northern states—affording sure markets for the produce of the flocks and fields of the northern farmer, and increasing the demand for the staple of the southern planter. The mechanical genius, the industry, and the resources of the country have been drawn out and put in successful competition with those of the old world—and now, at a period of about 20 years since *setting up for ourselves* and manufacturing on our *own hook*, we find ourselves amply able to supply our own demand for the most important articles necessary to our comfort, and even to carry the war of commerce and manufactures into the country of the enemy. In cottons and broadcloths we have succeeded admirably; what genius and perseverance have done for us in these departments of manufacture, they will do for us in other departments. Why not try silk, then? Have we forgotten the great lesson which the last war taught us? Must we wait for a rupture with France, and a consequent failure in the supply of silks, to teach us the lesson again?

Silk has become a common if not a necessary article of consumption. The wealthy and the poor use it more or less; in robes, veils, handkerchiefs, and ribbons, and thread, it is used, perhaps, by every man, woman and child in the country; not a button hole can be made without it. We are paying France more than *six millions of money a year* for this very article; and yet it can be as well cultivated and manufactured in the United States as in France. The valleys and the hills even of the Green Mountain State can be made to produce silk—and they should be made to do it. Some enterprising Vermonters have commenced cultivating the mulberry, upon the leaves of which the silk worms are fed, and we doubt not that with a little care and labor they will soon find this a source of pleasure and of profit. Let those individuals persevere—let them impart to their neighbors and to their brother farmers, through the newspapers, the result of their experiments. By so doing we doubt not they will satisfy the most incredulous, of the practicability of raising *silk in New-England*, and thus introduce the cultivation of it as a regular and profitable branch of Agriculture.—[Vermont Watchman.]

PROSPECT OF THE SILK BUSINESS.

It is very gratifying to know that the attention given to the subject of growing silk is likely to result the most favorable to this country. Men of intelligence and enterprise throughout the United States, from the North to the extreme South, and to the West, are engaging in the culture of the mulberry tree as food for the silkworm, and are making arrangements to carry forward the business with an ardor highly flattering to the success of the project. Many have commenced rearing the worm and have met with success equal to their expectation. There are now several societies in existence for the purpose of forwarding the object, and seven companies are already formed for manufacturing the article. Silk must eventually become one of the staple productions of the United States.

☞SILK MANUAL.—The proprietors of the *Farmer and Gardener, Baltimore*, have in the press, and will speedily publish, *a complete Manual of the Mulberry and Silk Culture*; compiled from the best and most authentic sources. As the object is the promotion of a great public interest, the cost will be moderate.

TO PRESERVE GRAPES.—Take close bunches, whether white or red, not too ripe, and lay them in a jar. Put to them a quarter of a pound of sugar candy, and fill the jar with common brandy. Tie them up close with a bladder, and set them in a dry place.

TO PRESERVE DAMSON CHEESE.—Boil the fruit in a sufficient quantity of water to cover it; strain the pulp through a very coarse sieve; to each pound add 4 oz. of sugar. Boil it till it begins to candy on the sides, then pour it into tin moulds.—Other kinds of plums may be treated in the same way, as also several kinds of cherries.

[From the Cultivator.]

ON SEEDING.—Of all the practices constituting good husbandry, none are more replete with beneficial effects, and which better repay the outlay, than that of seeding. It has become an established practice with good farmers to seed frequently with clover and timothy, a practice that should be adopted by all. It is high time that the practices and opinions of our ancestors—those which derogate from our best interests, I mean—should give place to more modern and more rational views. That there has been great advancement in the science of agriculture, will be conceded to by all; then why do we cling so strenuously to ancient practices, when those of more modern date are infinitely superior?

I rejoice in the improvement that has been already made. Agriculture has become the theme of the day. The most enlightened of our citizens are embarking in its pursuits, which give assurances of its being ultimately established upon a basis concomitant with its merits. Then it behooves us to follow those practices most clearly demonstrated to be beneficial—and believing seeding to be one of these, I proceed briefly to detail its utility.

The practice of seeding is too much neglected by many of our farmers; a practice which, could they be induced to adopt, I am confident in believing would not be relinquished. The natural grasses yield less of quantity and nutriment than either clover or timothy, and some others of more recent introduction. Double the quantity of pasture may be obtained from a given piece of ground well seeded, than it would otherwise afford; and for mowing there will be a still greater difference.

Independent of this, its fertilizing properties to the soil must be considered. A good sod preserves the soil from the too great influence of the sun, renders it porous, and consequently pervious to atmospheric nourishment; hence we observe that meadows newly laid down almost invariably bear the greatest burden.

Whereas grounds not seeded, by being too much exposed, soon become of so compact a nature as to render them in a degree impervious to either heat or moisture, without which they cannot be capable of the least productiveness.

Autumn we consider the most proper time for sowing timothy, and the spring for clover. We have generally made it a practice to sow our timothy immediately after the last harrowing in of the wheat, having a person to follow each harrow, which leaves not a particle of ground without seed, and never have perceived the wheat to have been injured in consequence.

The time for sowing clover must depend altogether on the season, whether early or backward. We have oftener sown too early than too late, and I am inclined to believe that others have fallen into the same error.

In my opinion, it should not be sown until the ground begins to dry and become settled, when it will be observed there are innumerable small crevices produced by the contraction of the earth, which will receive the seeds, and which the first rains will close, thereby producing immediate vegetation. Respectfully submitted, by

GEO. WILLETS.

Skaneateles, Ond. co., 8th mo., 17th, 1835.

[From the Baltimore Farmer and Gardener.]

THE BARNITZ HOGS.—That gentlemen at a distance may be made fully acquainted with the character and qualities of the *Barnitz* pigs advertised in our sixteenth number, by Robert Sinclair, of Clairmont Nursery, we subjoin the following extract from a communication which originally appeared in the *American Farmer*, from the *Hon. Charles A. Barnitz*, late a member of Congress from the York district in Pennsylvania. The whole communication is replete with interest, and we recommend his method of keeping hogs to the attentive consideration of agriculturists generally, compared with the plan followed by many, of turning their hogs into the road or woods, where they have to shift eight months in the year for themselves, it is, indeed, as "hyperion to a satyr." Humanity would teach us that every beast of the field subjected to the dominion of man, has a claim upon him for kind treatment; an enlightened economy is equally instructive, in demonstrating that profit cannot enure from the raising of any animal which is badly kept. A pig thus *fed* from the moment it is weaned, until put into the pen for fattening, cannot reasonably be expected to be otherwise than stunted in its growth; and we think we might assume that, if two pigs of the same litter were taken, the one to be left to be its own caterer amidst the *luxuries* of the road, or the *rural* scenery of the forest, and the other to be well fed with wholesome and nutritious food, that the latter would exceed the former in weight, from fifty to sixty per cent., so that there would be a saving of that amount of corn when they come to be fattened for slaughtering, as one half, or, perhaps, less hogs, in number, would answer the purposes of the farm. When we talk of the pigs and hogs being well fed, we have not the most distant idea of that species of feeding which some adopt, and which partakes more of the quality of *stuffing* than any thing else; we mean a generous diet, without profusion, such as is provided by Mr. Barnitz for his hogs, which, without inducing grossnes, will keep the animals in a healthful growing state.

CHESTER BREED OF HOGS.—In one of your late papers, you noticed in terms of commendation the breed of hogs which I have kept upon my farm; and I now offer to you a brief account of their origin and peculiar properties of value. In the valleys of Pennsylvania, the farmers generally have distilleries, and their stock of hogs is obtained from the western drovers, who collect them as they can get them. The distillery affords abundance of food, and the good and bad, when moderately fat, are sold in a mixed lot for the city markets, without much regard to quality, or any discrimination as to the separate values of the animals.

Chester county seems to form an exception; there are few distilleries there; and the farmers, to turn their means to the greatest advantage, have shown a laudable attention to their farm stocks. The breed of hogs, especially, which is preserved with great care, has a celebrity throughout the State. I have not been able to learn their origin; but incline to the opinion that they are a cross from the Chinese, with the English white Suffolk breed, of which some were imported into Philadelphia county many years since. They are white in color; of fine form, easily fattened, and of early maturity: at one year, without extra keep, they often weigh three hundred.

I have no distillery; my mode of feeding, is—the first winter I feed on boiled potatoes and pumpkins, with linseed oil meal occasionally; in the summer, keep them on the clover field, say from May to November; those intended far fattening, are then put up for four or five weeks, and fed upon corn; five bushels to each in the ear (but better if ground) will bring them to full condition for killing.

I have a cheap and useful boiling apparatus, the whole cost being not more than eight dollars; it is simply a cast iron kettle, containing a barrel, put up like a hatter's kettle, with a small fire place below, and flues running up behind; a sheet iron lid covers the top, and a rough board shed is fixed about it to keep off the wind and rain. A boy in two hours may thus boil several barrels of pumpkins and refuse potatoes or turnips, and the slop keeps moderately warm during two or three days, even in winter; a sprinkling of salt is necessary, and a few handfuls of corn meal will richly improve the mass. A piece of rotten wood, or a shovel of coals from the bake oven-pit, occasionally thrown into the pens, is necessary as a luxury, and I suppose a useful absorbent.

The praises of the *poor man's cow* we often hear, but the poor man's pig I deem of really greater value. The cow, it is true, yields his family a luxury during nine months in the year, but at an expense of not less than twenty-five dollars. A pair of pigs, of a good breed, the cost of which with keep and fattening will not exceed fifteen dollars, furnishes his family with five hundred pounds of meat, sufficient for his year's consumption.

Among the agricultural improvements of the day, some attention has been excited to the breed of hogs, and the mischievous notion long prevailing, that *feed makes the breed*, is going by. A valuable article was published some time ago in your paper on this subject, from the pen of your late lamented correspondent, Mr. Meade, containing many excellent hints. The loss of this useful citizen to the agricultural community, would seem to make it incumbent upon others, to contribute occasional suggestions, which their practice or information may furnish, to further our common cause; and in the hope that the example may draw upon the leisure hours of some to follow me, I have extended my sketch to a more tedious detail than I at first intended.

C. A. BARNITZ.

Springdale, York, Pa.

[From the Horticultural Register.]

On Heating Horticultural and other Buildings by Hot Water.

The way properly to approach this subject, is first to consider this scheme as compared with the former methods of heating such structures with flues, warm air and steam. The objections to the first, are the dry heat it occasions, owing to the hot air circulating through the flues having been in immediate contact with the fire, by which it is deprived of its moisture, partially decomposed or altered, and largely charged with carbonic acid gas; the heat of this air is probably 4 a 600 degrees, and should the fire by accident be made too large, or a leak occur in the flues, the plants are inevitably injured. Warm air is seldom used, but is open to the same objection. We have proved in four months' successive experiments for chemical purposes, that atmospheric air passing over ignited coal, becomes combined with a considerable quantity of carbonic acid gas, which is unfit for vegetation, and injurious to respiration.

The method of heating by circulating steam through pipes, is free from this objection, but the inconveniences are, that accident or negligence may over-load the

safety-valve, and endanger the building; or what is the most serious objection, that the moment the fire gets so low as to cease driving the steam, the house becomes quickly cold, no heat being given off by the pipes.

To these objections the plan of heating by hot water inclosed in pipes is not liable; the surface by which the air of the building is warmed, scarcely ever attains 160 degrees of heat, (212 is boiling point) and it is almost impossible, if the proportions are originally properly calculated, to bring it to this point; consequently the plants can never be injured by overheat, and the atmosphere remains undeprived of its moisture, unaltered and uncontaminated. I have seen two adjoining green houses heated, for sake of experiment, by flue and hot water, the same species of plants being placed in each: after two months' operation, the difference in vigor of vegetation, in size and color of leaves, was beyond all conception strikingly in favor of the hot water. The thermometer was always much more steady, and the air never felt oppressive. In addition to this, if the boiler is properly constructed, so as to have a sufficient body of water heated, should the fire be let to go out, the water will take several hours to cool, and the pipes will continue to give off heat the whole time.

In fact, the superiority of this plan has been evident ever since its first application; but it has been several times in disrepute, owing to failures and accidents arising from a want of knowledge of first principles in those who have undertaken to construct the necessary apparatus, and in every one trying to start and drive a hot water system of his own, often opposed to these principles, and as often endeavoring to force them beyond their natural limits.

There are two extremes in the application of this system, the space between which has afforded extensive ground for experiments and plans. The first is the method of Perkins, who passes strong tubes of small diameter through the midst of the furnace, and thus heats the water to 4 a 600 degrees; these small tubes continue through the buildings, and give off a large quantity of heat; they take up little room, are easily concealed, and effectually warm the building. This is, therefore, very desirable, as long as the pipes remain sound; but should any accident produce a leak ever so small, the result might be a very dangerous explosion, notwithstanding the safety-valve.—It is idle to say that common care will prevent this; several explosions have already taken place—and although every precaution is taken at a powder magazine, yet no one prefers to reside near it.

The other extreme is not heating the water sufficiently to keep up a rapid circulation through the pipes. This often arises from a wrong construction of the pipes and boiler, as well as of the furnace. Heat cannot be economized beyond a certain degree; if every glowing coal is placed in contact with a body which abstracts its heat, it is impossible to keep up a fire, and unless sufficient heat escapes up the chimney to rarify the air there, no draft can be created, and the fire will not burn; therefore, much depends on the proper construction and proportions of the boilers and furnaces.—Again, hot water does not give off heat in proportion to its solid mass, but from its surface; therefore, the larger the surface is, compared with the solid contents of the pipes, the more rapid will be the circulation, as the heat is given off quicker, and in larger quantities; to this, however, there are limits in reason.

Attention to the proper levels is of main consequence in this system, as if any part of the pipe descends below the bottom of the boiler, the circulation is immediately arrested.

Kewley's method with a syphon inserted a few inches below the surface of the water in an open boiler, is an excellent way, where an unlimited quantity of heat is required, or where additional heat is wanted occasionally.

GREAT IMPORTATION OF IMPROVED SHORT-HORNED DURHAMS.

The *Evening Star*, of Sept. 5th, gives the following description of eight splendid animals of the above breed, imported from England by the AGRICULTURAL SOCIETY OF OHIO.

We had not the pleasure of seing these cattle, but have heard them spoken of as a very superior lot. It is gratifying to witness the efforts in different parts of the country, to improve the breed of domestic animals—much good must result from it.

THE SHORT-HORNED DURHAM OX.—"Some superior specimens of this famous breed of English cattle, were imported a few days since in the ship Great Britain, Capt. French, from Liverpool—having been purchased for the Ohio Agricultural Society, whose enterprising exertions we have before had occasion to advert to. We believe the present are the finest samples ever brought to this country. They are eight in number, two year old and yearlings. The largest, which is a two year old white bull, is of Herculean size, but not on that account of gross or unwieldy shape, but of remarkable elegance and symmetry of proportions, both in the body, neck, head and limbs—presenting in fact a beautiful model or study for a painter like Wouermans, so famous for his cattle. He weighs 2500 lbs. and cost in England £200, making the whole expense of bringing him out about $1000.—What seems particularly to distinguish this breed of cattle, is the small elegant limbs, the robust muscular form of the neck, the fine contour of the head and face, and the short crumpled horn turned inward. The neck in this bull is of a depth fully equal to the length of the head, the small pointed nose forming with the forehead, throat and upper part of the neck, an isosceles triangle, of which the throat is the base line.—The two year old cow, which stood in the stall next to the large bull, was of white color, and nearly of the same size, also of elegant form. The yearlings, composed of both sexes, were full as large as some of our full grown cattle. The animals were fed on the passage on hay and oil cake, (made of ground flaxseed) and the sides of the stalls being cushioned, prevented any injury from the motion of the ship, from which in fact they scarcely felt any inconvenience, as they very prudently lay down during a gale.—The consequence is they have lost but very little flesh, and are in excellent health.—The English boy who had charge of them, came out expressly for that purpose.

RICE IN LOUISIANA.—The annexed extract of a letter proves the productiveness of rice grown in our own state. The inducements it holds out to the planters to turn their atttention to it are tempting and should not be overlooked:

"In walking through the plantation of Dr. Y. M'Daniel, which lies on the west bank of the river Ponchotula, parish of Livingston, my attention was attracted by the enormous size of his rice. I was invited to walk in, and to my astonishment, upon an admeasurement of it, although it had not attained its full growth, it proved to be nine feet high, when cut off above the grain. Its produce was as follows: in one single stool was found 33 stalks, each stalk, on an average, produced 477 grains, which made the astonishing number of 15,741 grains, the product of one single grain of rice."

[From the New-England Farmer.]

Poor Laws of Great Britain.

We received the Edinburgh Quartely Journal of Agriculture for June, some weeks ago; and now proceed to take some notice of its contents.

The *first* article is an elaborate comparison of *The Poor Laws of Great Britain*, from which it appears that the poor have been much more judiciously managed in Scotland than in England. We select one paragraph to show the difference between the laborers of those two countries.

"The mode of living in Scotland has been lower than in England; and hence it is less expensive to provide for a poor man here than in the south. An English laborer thinks himself starved, if he does not daily eat butcher-meat and white bread, and drink malt liquor; whereas in Scotland *milk* and *meal* (oatmeal) make a plentiful house, and *our ablest ploughmen take nothing more*. Potatoes, which the children of our gentry prefer to bread, are regarded with considerable scorn by laborers in the south of England. What an English laborer spends on his bacon, beer, and white bread, is in the hilly parts of Scotland spent by the Scottish laborer *on the education of his children*. Nay, the most intelligent and popular of the English periodial writers, William Cobbett, M. P. seems to have no idea that better can be done for English laborers than to feed them well with bacon, bread and ale. He does not appear to think them capable of rising to intelligence, or finding their highest enjoyment in the cultivation of their minds, as religious and moral beings, and in the ambition of educating their children to the possession of accomplishments not enjoyed by themselves."

An eloquent advocate of Temperance in our own country, has said, "The drunkard knows that when he shall have spent his all and become a pauper, he will have a better claim to your property than you have; and that his support will be provided for, whether your estate can support you or not." In some parts of England, this principle has been carried out into an alarming extent; and the following startling facts will prove that pauperism has *there* become an intolerable burden:

——"Out-door relief to able bodied persons is also given in money, and first without requiring labor in return. The applicant pleads that he has been unable to obtain full work, that he has lost a day or two, &c. On such pretexts, young men demand from the unlimited resources of the parish an indemnity for their loss. Young men in this way often receive 2s. 6d. or 3s. per week; and employing their time in depredations of various sorts, *do no work whatever*.

——"In winter generally, a laborer in the country comes on the parish, whatever he may have earned in summer. It is enough that he is now in want, having no work, or short work and short wages.

"Many parishes oblige the occupiers of property to employ the applicants for relief at a rate of wages fixed by the parish; and depending, not on the *services*, but on the

wants of the applicant, the employer being paid out of the poor-rate all that he advances in wages above a certain sum.—The conduct or ability of the laborer as a workman is not regarded.

"Parishes sometimes employ in actual labor, and pay wages to the applicants for relief who say they have not found employment. They are set to dig gardens or fields, or to work on the roads. Such labor has in all cases proved most unprofiitable; little or nothing is done; the men have indulged themselves in utter laziness; and usually become so infamous, that no body will employ them. Whatever his previous character may have been, parish employment of an individual though occasionally on the roads, ruins him as a laborer. Every principle of industry is violated. When the single man gets 5s. the married man for the same work gets 10s, so that they are made to feel that the *work* and the *wages* have no true connection. The sense of shame is soon obliterated by habit and example. Attempts to treat the deserving better than others, have always done harm. It excites murmuring, and ultimately to satisfy the clamors of the undeserving, the scale of relief is raised.

"By subsistence in a poor house, the paupers in England usually remark that *they live better there than they ever did before.*—They have excellent apartments, good beds, and abundance of the richest food. They live no doubt in the society of many bad or profligate persons, but to this they become accustomed; and children brought up in the workhouse are extremely apt, when places have been got for them, to desert their service and return to the workhouse. In general the workhouse is a large almshouse in which the young grow up in idleness, ignorance and vice; the able bodied are maintained in sluggish sensual indolence; the aged and more respectable exposed to worthless society; and the whole body of the inmates subsist on food, far exceeding both in kind and amount, not merely the diet of the independent laborer, but that of *the majority of the rate payers.*

"It will not appear surprising that this system of poor laws is popular with the inferior orders of society. The laborer feels that it gives him perhaps low wages, but always easy work and independence. He need not bestir himself to seek work; he need not study to please his master; he need not put any restraint upon his temper; he need not ask releif as a favor. He has all a slave's security for subsistence without his liability to punishment. As a single man indeed, his income does not exceed a bare subsistence, but he has only to marry and it increases.—If he abscond and desert his children, he knows they will be well taken care of.

"In consequence of this perpetually increasing evil, the English nation, for the year ending 25th March, 1832, paid in poor rates the sum of £7,036,968; although in that year the price of corn was extremely low.

"It appears that in one parish, that of Cholesbury in Bucks, the collection of the poor rates in 1832 suddenly ceased in consequence of their enormous amount. *The landlords gave up their rent, the farmers their tenancies, and the clergyman his glebe and his tithes.* It was found that even by dividing the whole land of the parish among the able bodied paupers, these able bodied paupers would be unable to get their bread out of it without aid, during two years, from the neighboring parishes; and that after all, the aged and impotent must remain a permanent burden on these neighboring parishes. In other quarters, farms became untenated, or the rent reduced to a half or less, on account of the poor rate. The Commissioners* mention a farm in Kent of 420 acres of good land, tithe free and well situated, which had just been thrown up by the tenant on account of the poor rate. Near Aylesbury they mention forty-two farms untenanted. At Thornborough, Bucks, 600 acres unoccupied, and the greater part of the other tenants had given notice that they were to quit their farms. Many other places are mentioned as in a similar state from the same cause.—Generally after 1820 this disastrous result was proceeding gradually over England, in consequence of the increasing burden on the possesors of land.

"*The soil of Englaud has of late been hastening fast to become the inheritance of the poor,* without enriching them, because the same poor rates keep them down which had brought down the former proprietors.—Divide the land of a parish among the poor, and they are speedily oppressed by the necessity of supporting the progeny of improvident marriages whom the poor laws oblige them to maintain in affluence.

"Good ploughmen are not to be found. The laborers say they do not care to plough, because that is a kind of work which if neglected will subject them to punishment; and if properly done requires constant attention, and the lads do not wish to learn. Nine able bodied young men were in the workhouse last winter; such was their character that they were not to be trusted with thrashing. When the bad season is coming on, the laborers frequently dispose of any little property they have, such as a cow or a pig, so as to entitle them to parish wages. The workman tells his employer he does not want his work or his wages, he can do better on the parish.—By an old experienced laborer it was supposed that one laborer forty years ago, would do more than two of the present day.

"One great evil has been that those laborers who retained their independence could get no employment, because the farmers were *coustrained* to employ the bad workmen. Take the case of Wm. Williams, a hard working industrious married man, who had acquired two cows, and a sow and ten pigs, and saved £70; he also got a legacy of £46. The consequence of this was that no one would employ him, although his superior character as a workman was well known. He told me (says the employer) at the time I was *obliged* to part with him, 'while I have these things I shall get no work; I must part with them all; I must be reduced to a state of beggary before any one will employ me.'

"Matters soon came to this, that mothers and children would not nurse each other in sickness until they were paid for it by the parish, which was accordingly done.

"But all these effects of the English poor laws seem slight compared to their effects on the morals of the female sex of low station.——

"In Great Grimsby, the overseer says that most of the relief is altogether unnecessary; but he is convinced that if an abatement were attempted, his life would not be safe; he looks to the farmers for support which they dare not give, considering that their lives and property would be in danger.

"At Great Gransden the overseer's wife told Mr. Power that two paupers came to her husband, demanding an increase of allowance; he refused them, showing at the same time that they had the full allowance sanctioned by the magistrate's scale; they swore and threatened that he would repent it; and such was their violence, that she called them back, and prevailed with her husband to make them further allowance.

"The question is apt to occur, Why did not the English Legislature at once adopt the Scottish system? The answer is, that the pretended omnipotence of *parliament would have been unequal to the task of carrying such a reform into effect.* To withdraw five millions sterling from the subsistence of able bodied persons in England, *would have produced a convulsion,* to encounter which the resources of the state, either civil or *military,* must have proved unequal."

In our selections, we have omitted many disgusting details, and now willingly turn from this dismal picture to the urbanity and pleasantry of our author's concluding lines:

"We of Scotland wish every degree of success to our bretheren of England in their attempt to heal *a gangrene of 250 years' endurance,* which appears after all, not so pernicious to the rich, whose wealth only it effects, as to the poor, whom it sinks into a state of intellectual and moral degradation; and who but for this evil in their institutions, form naturally the best, the bravest, the most generous, and the noblest race of human beings that have hitherto appeared on this globe,—excepting always, of course, their northern neighbors and admirers."

* Appointed by his Majesty "to make a full and diligent inquiry into the practical operation of the Laws for the relief of the Poor in England and Wales."

[From the Maine Farmer.]

"WHAT A FARMER WANTS."—A Farmer wants all that belongs to him, and credit for what he does. We notice frequently in the papers of the day, extracts from our own goodly sheet, ycleped the Maine Farmer, but not a mark or a note to tell from whence it was taken, or a single sign, even so much as to say "thank ye sir." Among sundry articles thus purloined, is a piece of poetry entitled "What a Farmer wants," first published in the Maine Farmer, which may be now found in as many as six different papers without any credit given us for the bantling. It is from the pen of our worthy friend J. H. J. We will call no names at present, but we say unto ye all, "Render unto Cesar the things that are Cesar's," and unto the Maine Farmer the things that are the Maine Farmer's.

Good.—[ED. N. Y. F.]

The Rensselaer and Saratoga Railroad is now completed. The first train of cars crossed the bridge over the Hudson and entered Troy on Tuesday.

PORK.—Contracts are now making for Pork, at four dollars per hundred; and a small quantity has been engaged at $4,25. The prospect is, that this price will be maintained, throughout the season.—[Cincinnati Gazette, Oct. 2d.]

FLOUR.—Another lot of five hundred barrels, of the brand "Clark's Mills," Brown county, was sold at the river landing yesterday, from the steamboat Wyoming, at $5,50 cents per barrel, and inspection.—[Cincinnati Gazette, Oct. 2d.]

NORFOTK, Sept. 30.—THE NEW CROP—A bale of cotton of choice staple, being the first of the new crop that has appeared at our market, was brought in yesterday morning in a wagon from Chowan county, (N. C.) and readily sold at 19 cents.

HANDSOME REWARD.—The officers of three of the Banks at New Orleans have united in offering a reward of $2,000 for the apprehension of James M. Crosby, late a dealer in china and glass ware in that city, who has absconded after committing extensive forgeries.

[From the Albany Argus, extra.]

ALBANY.

The following communication, exhibiting the actual condition of our city, its prospects and advantages, is from a source, it will be perceived, that entitles its statements to entire credit. We lay it before our readers with the more pleasure, as the present indications point not only to the continued prosperity of the city, but to the prevalence of a spirit among us that must lead to a far higher appreciation of the advantages of this most favored location for all the purposes of extensive business and profitable adventure. The growth of Albany has been steady, and in all respects substantial. At the head of one of the most noble rivers in America—at the confluence of the river, and a chain of internal communication, stretching west from the Hudson to the Mississippi, and north to the St. St. Lawrence—the recipient of the products, not only of our own west, with its abundance and fertility, but of all the extended and rapidly improving country, bordering upon and lying between the two great points referred to,—its destiny cannot be mistaken. It must become one of the largest of the cities of the Union. This result will be facilitated by the measures now in progress for opening a direct communication, via Stockbridge and Worcester, to Boston; and particularly by the fresh spirit and energy with which our citizens have entered into that and other improvements.

This communication, which we conceive to be of sufficient value to issue in this form, is intended to be addressed to such persons in the New-England States especially, as will be likely, from their character, standing and relative situation, to view the matter with interest, and give it circulation among those for whose information it is designed.

——

Sir—With a view of inducing men of capital and industrious mechanics contemplating to remove from your neighbourhood to this or the western states, to establish themselves in this city, we take the liberty of presenting to you the following statement, with the request that you will give it a general circulation.

Albany, the capital of the State of New-York, is near the head of navigation on the Hudson River, where the great western and northern canals terminate. Its happy position, at a point where a river navigable to the ocean, and one of the finest in the world, meets the great inland communications with the northern and western lakes, ensures its advancement, and that at no distant period, to the very first rank among the inland cities of this country. Since the completion of the Erie and Champlain canals, its progress in population and business has been almost unexampled.

In 1820, the number of inhabitants was 12,630. In 1830, 24,209, being an increase of 92 per cent in ten years. No census has been taken since 1830, but one is now in progress, and will shortly be completed. No doubt is entertained, from the increase of business in the city, that it will show a very great increase of population over that of 1830.

The following table shows the increase in the amount of produce and merchandize arriving at Albany, by way of the Canal in two years from 1832 to 1834:

COMPARATIVE TABLE FOR THE YEARS

		1832.	1834.
Domestic spirits,	bls.	21,285	20,839
"	hhds.	1,274	
Boards and scantling,	feet,	36,020,594	62,103,000
Shingles,	M.		22,643
Timber,	feet,	55,563	104,145
Flour,	bls.	422,695	795,182
Provisions	"	21,274	20,864
Salt,	bush.	23,117	19,070
Ashes,	bls.	19,091	16,494
Wood,	cords,	15,224	17,685
Wheat,	bush,	145,960	233,574
Coarse grain,	"	208,943	490,880
No. of boats arr'd and cleared,		14,300	18,554
No. of tons,		109,300	146,800

It appears from the above table that the increase in favor of 1834 over 1832 on the three greatest articles of merchandize, viz: lumber in its various shapes, flour and grain, is from 70 to 100 per cent. and a continued increase will no doubt go on.—The lumber trade alone at this city, is already immense, it being one of the best lumber markets in the union, and promises to continue so for a long time to come.

The following is a complete return of the different articles arriving at Albany by way of the canal during the year 1834.

1834.

[Complete return of articles, under the new order.]

Domestic spirits,	brls.	20,839
Boards and scantling,	feet	62,103,000
Shingles,	M.	22,643
Timber,	feet	104,145
Staves,		56,438,000
Flour	brls.	795,182
Provisions,	"	20,864
Salt,	"	10,070
Ashes,	"	16,944
Lime,	"	455,810
Beer,	"	293
Cider,	"	43
Dried fruit,	lbs.	45,934
Apples,	brls.	1,241
Wood,	cords	17,685
Wheat,	bush.	233,574
Coarse grain,	"	490,880
Bran and ship stuffs,	"	273,191
Peas and beans,	"	13,137
Potatoes,	"	19,758
Clover and grass seed,	lbs.	790,454
Flax seed,	"	613,046
Wool,	"	591,760
Cotton,	"	22,412
Cheese,	"	1,553,304
Butter and lard,	"	1,826,341
Hops,	"	247,165

(Circular.)

Hemp,	"	57,581
Tobacco,	"	447,349
Fur and peltry,	"	361,283
Stone,	"	4,111,323
Merchandize,	"	181,218
Furniture,	"	199,747
Clay,	"	4,256
Pig lead,	"	1,000
Pig Iron,	"	49,213
Iron ware,	"	377,922
Sundries,	"	8,129,695

There is no doubt that the business of this year will very greatly exceed that of the last. By returns from the collector's office at Albany, up to the 1st of August, (after which it will be recollected the great business season of the year is yet to come,) it appeared that the amount of many of the articles mentioned in the foregoing report which had then arrived, exceeded the entire quantity that arrived during the whole of last year.

The following is a statement of the canal tolls received by the collector at Albany, down to the 1st of September in 1834 and 1835:

To the 1st of September, 1834,	$124,262 49
" " 1835,	192,883 10

Being an increase of business by the way of the canal of 56 per cent. since last year. Besides this, a considerable quantity of produce is brought to Albany on the Mohawk and Hudson Railroad, which strikes the Erie canal at Schenectady—the amount being about 420 tons per week.

For the future, the prospects of Albany are still more encouraging. The Railroad from Schenectady to Utica is now constructing, and will be completed by next July or August; thus extending the railroad communication 100 miles west. Railroads are also constructing between Syracuse and Auburn and between Rochester and Batavia, which will so far complete the line of railroads to Buffalo, that it is easy to foresee that but a short time can elapse before a continuous line will be established to Lake Erie, thus making the spring and winter facilities of transportation nearly equal to those of the summer. A company is now engaged in making surveys for a railroad from Albany to Stockbridge in Massachusetts, which with the contemplated railroad from Stockbridge to connect with the Boston and Worcester railroad, will form a chain of railroad communication between Albany and Boston, which will be of great advantage to this city, especially in the winter; when the intercourse by water with New York is suspended.—When all these roads are completed, and there is no doubt they soon will be, and the links west of Utica, above referred to, filled up, there will be a line of railroad communication from Boston to Buffalo; from the Atlantic to the western lakes, of which Albany will be the business centre.

While private enterprise is doing so much to improve the communication with the west, the State government by a late law has authorised an enlargement of the Erie Canal and the construction of double locks, which it is supposed will have the effect to reduce the price of transportation 30 to 40 per cent., and greatly to augment it in quantity.

The present rate of toll on 1000 pounds of flour from Buffalo to Albany is $1 62 1-2. The reduction will bring it to less than one half the cost, for the same distance by any other route, and the valley of the Mohawk must continue to be, as it always has been, the natural and easiest channel of commerce with the west, and Albany the depot where the exchange takes place between the productions of the interior for those of the sea coast and of foreign countries. This exchange will be much facilitated by the improvement now making in the navigation of the Hudson, by the United States government. The removal of the bar, which is the object of this improvement, will, when completed, deepen the channel *to about twelve feet*, and will give to this place a West India trade, in which the productions of the islands, consumed in the west, will be exchanged for the produce brought down the canal, without being burdened by landing, storage and reshipment at New-York.

No doubt is entertained that the coasting and West India trade will be carried on to a very great extent in Albany, and with very great profit and success, so soon as the improvement in the river navigation is completed; and for the reason above given, no place in the country can, in many respects, be more advantageously situated for it. Indeed, the coasting trade carried on between this city and the seaport towns of New-England, is already very extensive. There are about twenty-five regular trading vessels between Albany and Boston only, which it is estimated by one of our most intelligent forwarding merchants bring to this place about 25,000 quintals codfish during the season, and about 25,000 barrels of mackerel, besides large quantities of merchandize which passes up the canal or stops for a market here, not less, probably, than 5000 tons. These vessels take from Albany to Boston, in return, about 75,000 barrels of flour per season, together with large quantities of timothy seed, peas, wool, &c. The indirect trade between Boston and Albany, which is transhipped at New-York, is also very extensive.

Besides the routes above mentioned, others are making to the north, all directly communicating with this city, and increasing its advantages. A railroad communication already exists between this place and Saratoga Springs, by way of the Mohawk and Hudson and Saratoga and Schenectady railroads. The railroad now about making from Saratoga Springs to Whitehall, will complete the route to Lake Champlain, and afford the same advantages for a trade with Canada in the fall and spring as are now given by means of the northern canal in the summer.

It necessarily results from the situation of Albany, and its easy means of communication with the surrounding country, that an immense travel centres at this city. Some idea may be formed of its extent when we state that it is estimated, and no doubt truly, that from 600,000 to 800,000 persons arrive at and depart from this city in the course of the year, by the several stage routes, railroads, steamboats and other vessels—and this number is yearly increasing, and no doubt six years will see it doubled.

In consequence of this city being a great depot for the produce of the north and west, raw materials for manufacture are obtained here at the cheapest rates and provisions are lower than in any of the Atlantic cities. The market is abundant at all seasons of the year, and is well supplied with all the necessaries and luxuries of life, at moderate prices.

Industrious mechanics, and all men of enterprise and character, cannot fail to prosper in Albany, as the means of living are cheap, and the market extensive—communicating with almost every section of the country, in the readiest manner. All will here find an almost certain reward for their exertions; almost every branch of mechanical labor is or may be carried on at this city to very great advantage, and no doubt with great success. Good water power exists in its vicinity for mills and

manufactories, and a ready market can easily be found for all products of labor and skill. With the strong conviction that the interest of those who may come to take up their residence in our city will be promoted, as well as the prosperity of the city thereby increased, we hope that you will give circulation to this statement, among such as you may suppose wish to seek in this State additional encouragement for their enterprise and industry.—Respectfully, yours,

ERASTUS CORNING,	THOS. W. OLCOTT,
JOHN TOWNSEND,	JESSE BUEL,
TEUNIS VAN VECHTEN,	GIDEON HAWLEY,
FR. BLOODGOOD,	H. BLEECKER,
JOHN WOODWORTH,	B. KNOWER,
S. VAN RENSSELAER, JR.	JAS. VANDERPOEL,
AUGUSTUS JAMES,	LEWIS BENEDICT,
JAS. STEVENSON.	

THE HAERLEM RAILROAD COMPANY made a visit of examination on Saturday, 3d October, accompanied by many members of the Senate of the State, now sitting here as a Court of Errors, and of the Corporation—together with other invited guests—to their road.

After examining the whole line of works, completed and to be completed, a handsome dinner was served to the Company and their guests, at the Prospect Hill house, which went off with great spirit.

Not having been able to avail ourself of the invitation of the Company to be present on this occasion, we give, from the Gazette, the following particulars respecting the *Tunnel*, now constructing at the Haerlem heights.—[N. Y. American.]

The operations, now in progress in the Haerlem Railroad, are entrusted to the management of Mr. John Rutter, an experienced miner from Cornwall, England, as superintendent, and Mr. John Ewen, Jun. Engineer.

The tunnel commences at the southerly side of 91st-street, and terminates at the northerly side of 94th street, and will be, when completed, 844 feet in length, 24 feet wide and 21 feet high in the centre. This is by far the most extensive work of the kind in this country, and is even more so than that of the tunnel on the Liverpool and Manchester Railroad, which is only about 600 feet long, 22 feet wide, and 16 feet in height. Each end of the tunnel will be finished with a handsome stone facing, so as to give it a conspicuous and pleasing appearance. There are at present about seventy-five men employed on the tunnel and open excavations, who work in gangs of twenty-five each, eight hours at a time, both day and night. The excavation was commenced about two months since, and ninety feet have already been completed, and the whole work will be finished in about eighteen months from the time it was first undertaken. The embankment commences at 100th street and extends to 106th street. This will be a most substantial work, as the whole will be supported by slope walls of dry masonry. At the crossing of the streets there are handsome arched carriageways, supported by stone pillars. At the northern termination of the embankment, the bridge commences, extending from 106th to 108th streets.—This bridge will be similar to that of the one now constructing by the New Jersey Railroad Company, over the Hackensack River, and is denominated the Truss Bridge, the invention of Ithiel Town, Esq. It will be 620 feet in length, supported by two stone abutments and two piers, with a span of about 200 feet.

***Specification of a Patent for a new and improved mode of constructing a Mill Bush, or Spindle Box, for Flour Mills; and also of making and fixing a Ring and Bale in the Eye of the upper Stone. Granted to* WARREN P. WING, *of Greenwich, Hempstead county, Massachusetts, February* 20, 1835.**

To all whom it may concern, be it known, that I, Warren P. Wing, of Greenwich, in the county of Hampshire, and State of Massachusetts, have invented certain improvements in the manner of fixing the mill bush, or spindle box, and of constructing a ring and bale to be fixed in the eyes of millstones for the grinding of flour, or other articles; and I do hereby declare that the following is a full and exact description thereof.

I make a box, usually of cast-iron, which I adapt in size to the eye of the stone. For the sake of facility of description, I will give the dimensions of one which I have made, and which, after a fair trial, has been found to answer well in practice.

The box has a top, which top fits on to it, like a snuff-box. It is ten inches in diameter, and five inches in depth, the outer rim being three-fourths of an inch in thickness. The bottom and top are both perforated in the centre, so as to allow the mill spindle to pass through them. This box is to contain three bearing pieces, of block tin, or of any proper mixed metal, which are to be simultaneously forced up against the spindle, and which are in contact with it for about three-fourths of its circumference, the remaining fourth being exposed to the cooling influence of the air. These metal bearings are cast into a follower of cast-iron, a birds-eye view of which resembles the letter H, the outer end of which receives the cam, or eccentric, by which the bearings are to be forced up against the spindle. Cells to receive these followers are formed within the box, by six wings, or cheeks, extending from the top to the bottom, the sides of each of the three cells thus formed being parallel to each other, that the followers may slide readily and truly therein; these wings are, of course, cast with the box. The void space between them admit of the contact of air with the spindle, and one of them is to be used for another purpose, to be presently described.

Between the rim of the box, and the crossbars of each of the followers, the bottom is perforated to allow the passage of round rods of iron, the upper ends of which are formed into cams, or eccentrics, for forcing up the followers, and, for this purpose, extend up through the whole depth of the box. The lower ends of the above named round rods, or spindles, extend down sufficiently below the bed stone to allow of their being acted upon conveniently, as they are all to turn at the same time. The turning them simultaneously may be effected in various ways, but that which I deem the most simple is by attaching each of the spindles to a ring, by means of a jointed crank, so that, when the ring is made to revolve, the followers will all advance at the same time; other modes will occur to any skilful mechanician, and need not, therefore, be specified.

The cover of the box I make somewhat convex; it need not be more than one-fourth of an inch in thickness; besides the perforation in its centre for the spindle, I usually drill, or cast, holes through it, near the inner edge, which I fill with wood, in order to nail the elastic collar thereto.

In order to lubricate, or oil, the spindle, I drill a hole through the bottom of the box, near the periphery, and in one of the angles formed by it, and one of the before named wings, or cheeks, in one of the void spaces. A rod extends down through this hole, in the manner of those attached to the eccentrics, and this carries a leaf within the box, to which a sponge containing oil, or a lump of grease of any suitable kind, may be attached. By turning this rod, the oil, or grease, is brought into contact with the spindle, and lubricates it; and this may be done in a moment, as often as it is found necessary.

My improvement in the bale and ring consists in casting them in one entire piece, in such way that the ring may be let into, and firmly affixed in, the eye of the stone. The bale rises as a semicircle above the ring, or forming such other curve between two opposite points on the diameter of the ring, as shall adapt it to the cock heads of spindles already made. Gains, or notches, are made under the ends of the bale, in the ring, to receive the driver.

What I claim as my invention, is the construction of a spindle box, in which the followers are moved up by eccentrics, or cams, without the necessity of stopping the mill, and operating substantially in the manner described.

I also claim the arrangement for lubricating, as herein described, and likewise the manner of constructing the ring and bale in one piece, as herein set forth; not, however, intending to confine myself to the exact form which I have described, but to vary the same in any manner which I may think proper, whilst the like ends are attached by means substantially the same.

WARREN P. WING.

☞ THE MATHEMATICAL INSTINCT OF BEES.—The operations of pure instinct have never been supposed by any one to result from reasoning; and certainly they do afford the most striking proofs of an intelligent cause, as well as of a unity of design, in the world. The work of bees is among the most remarkable of all facts in both these respects. The form is in every country the same—the proportions accurately alike—the size the very same, to the fraction of a line, go where you will; and the form is proved to be that which the most refined analysis has enabled mathematicians to discover as, of all others, the best adapted for the purposes of saving room, and work and materials. This discovery was only made about a century ago; nay, the instrument that enabled us to find it out—the *fluxional calculus*—was unknown half a century before that application of its powers. And yet the bee had been for thousands of years, in all countries, unerringly working according to this fixed rule, choosing the same exact angle of 120 degrees for the inclination of the sides of its little room, which every one had for ages known to be the best possi-

ble angle, but also choosing the same exact angles of 110 and 70 degrees for the inclinations of the roof, which no one had ever discovered till the 18th century, when Maclaurin solved that most curious problem of *maxima* and *minima*, the means of investigating which had not existed till the century before, when Newton invented the *calculus*, whereby such problems can now be easily worked. —[Lord Brougham's Discourse of Natural Theology.

Extracts from a Lecture on the Preservation of Timber by Kyan's Patent for preventing Dry Rot: delivered by Dr. Birkbeck, *at the Society of Arts, Adelphi, December* 9, 1834.

We have heard persons assert that it appears to them almost ridiculous to suppose that it ever can become necessary, on a large scale, to perform any operation with a view to render timber durable, beyond that of properly seasoning it by exposure to the atmosphere. But is not this mere prejudice? Why should not timber be prepared by a particular process, which conveys something additional into it, and thereby effects a chemical change in its nature, as well as leather is tanned?

"A very effectual procedure has taken place, in regard to one form of animal matter, by the preservation of the skin from natural decay in a process known by the name of 'Tanning.' This process will give a very good idea of Mr. Kyan's invention. Tanning consists in protecting the leather and skin by the introduction of tannin, which is generally derived from an infusion or decoction of the bark of the oak. If no change were produced in the gelating, which makes the largest part of the skin to be immersed in the tan pit, it would undergo certain chemical changes—it would putrify, and lose its tenacity; but if a portion of animal jelly is dissolved in water, and a little of the substance added, similar to the tannin, a combination will take place between the gelatine; a precipitate will follow of the animal matter, which is the tanno-gelatine, or a compound of tannin and gelatine, and is precisely that substance which is formed in the leather, and gives to it durability and power to resist the causes of decay. The same intention exists in the process of Mr. Kyan. It is true he does not act on the gelatine of animal matter, but he does on the albumen: one of the approximate principles of vegetable matter, which appears to have been slightly perceived by Fourcroy, but which was actually discovered by Berzelius, about the year 1813.

"In order to obtain this vegetable matter (*albumen*,) there are various substances which may be employed. The Hibiscus esculentus yields it in considerable abundance: it is a West Indian plant, which Dr. Clarke mentions as adopted in Demerara, for the same purpose, as, in other Islands, the white of eggs and blood are employed in the process of clarifying sugar. The ficus indica, also, if divided at the stem, will exude a considerable quantity of this matter. If the solution of the bichloride of mercury (which is the agent adopted by Mr. Kyan) is added to the vegetable matter, albumen, it will be found, when they come in contact, that decomposition occurs."

"Mr. Kyan, who had been a series of years (since 1812) engaged in trying a variety of experiments on the preservation of timber, was led to the present experiment by having, as he conceived, at length ascertained that *albumen* was the primary cause of putrefactive fermentation, and subsequently of the decomposition of vegetable matter. Aware of the established affinity of corrosive sublimate for this material, he applied that substance to solutions of vegetable matter, both acetous and saccharine, on which he was then operating, and in which albumen was a constituent, with a view to preserve them in a quiescent and incorruptible state, and obtaining a confirmation of his opinions by the fact that, during a period of three years, the acetous solution openly exposed to atmospheric air had not become putrid, nor had the saccharine decoction yielded to the vineous or acetous stages of fermentation, but were in a high state of preservation; he concluded that corrosive sublimate, by combination with albumen, was a protection against the natural changes of vegetable matter."

"The mode in which the application of the solution takes place, is in a tank similar to the model on the table. They are constructed of different dimensions, from 20 to 80 feet in length, 6 to 10 in breadth, and 3 to 8 in depth. The timber to be prepared is placed in the tank, and secured by a cross beam to prevent its rising to the surface. The wood being thus secured, the solution is then admitted from the cistern above, and for a time all remains perfectly still. In the course of 10 or 12 hours the water is thrown into great agitation by the effervescence, occasioned by the expulsion of the air fixed in the wood, by the force with which the fluid is drawn in by chemical affinity, and by the escape of that portion of the chlorine or muriatic acid gas which is disengaged during the process. In the course of 12 hours this commotion ceases, and in the space of 7 to 14 days (varying according to the diameter of the wood) the change is complete, so that as the corrosive sublimate is not an expensive article, the albumen may be converted into an indecomposable substance at a very moderate rate."

After stating the result of various experiments, Dr. Birkbeck concludes by observing that this discovery is yet in embryo, but that the public benefit that will result from it is beyond calculation. In an *Appendix* the various purposes to which the process is applicable are detailed: such as preventing dry rot, seasoning timber, protecting from insects, applying the process to Canada and British timber, and preserving canvass, cordage, &c. from mildew.

"Canada timber is much more liable to decay than that grown in the northern parts of Europe, and for this reason is never used in buildings of a superior description. The principle of decay being destroyed, as above shown, this objection is no longer in existence; and this kind of timber may now be employed with as great security as that of a superior quality and higher price.

"The same observation applies with great force to timber of British growth, particularly to that of Scotland, much of which is at present considered of very little, if any value for durable purposes, on account of its extreme liability to decay, whether in exposed situations or otherwise. The present process will, therefore, render of considerable value, plantations of larch, firs of all kinds, birch, beech, elm, ash, poplar, &c., which are the chief products of the great wooded estates, and which, when prepared, may be advantageously employed to most useful purposes."

"*Purposes for which the Prepared Timber, &c., would be highly useful.*—Houses, farm houses, out houses. Large timbers, floors, roofs, gutters, &c., furniture, and all joiner's work, preserved from dry rot, and perfectly seasoned. Posts, rails, gates, park paling, fences, hop poles, felloes, spokes, shafts, &c. &c. For these purposes any kind of timber may now be used, instead of the more expensive kinds. It will also supersede, in many cases, the employment of iron, from its acquired durability and greater economy."

The additional expense of preparing timber for buildings, such as farm houses, out houses, &c. in Mr. Kyan's manner is estimated at the very moderate sum of 20*s*. per load.—[Arch. Mag.]

Internal Improvement.—At a meeting of the American Institute of the city of New York, held at Clinton Hall on Thursday, the 24th day of September, 1835, the following preamble and resolutions were unanimously adopted.

Whereas, this Institute was incorporated by the Legislature of this State for the purpose of promoting "*Agriculture, Commerce, Manufactures and the Arts.*"

And whereas, the prosperity of each and every of these departments of industry is greatly dependent on safe, cheap and easy travelling and transportation, especially in respect to our farmers in the interior, also in respect to our manufacturers and artizans, the materials of whose fabrics are to a great extent procured and transported from distant markets and places, and returned again in the manufactured goods. And whereas, the merchant also is deeply interested in internal improvements, as by means of roads and canals production is greatly increased, and the materials embraced by mercantile operations are thereby made more abundant, and the facilities for the purchase and sale of those materials proportionably multiplied.

It was therefore resolved, That the interests of the farmer, merchant, manufacturer

and artizan, require that internal improvements should advance, and that no considerations of false economy should be permitted to arrest their progress, but that adequate expenditures ought to be made at once in order to obtain the benefits arisng from internal improvements by means of Railroads and Canals, wherever the country will admit, and the wants of the people require such facilities.

Resolved, That these expenditures will be doubly repaid to the state and people; first, in the income received from tolls, and secondly, from increased agricultural production in those fertile sections of this state whose distances from market render the fruits of farms of little value, and in the establishment of extensive manufactories on never failing streams whose waters are now running to waste, and in extended commercial operations and dealings, and in new and vigorous efforts of industry which the expenditures in improvements will inevitably produce.

Resolved, That in order to enable the friends of internal improvements to act with concert and efficiency, a convention be recommended to be held at the city of Utica on Wednesday, the 11th day of November next, at 12 o'clock, M., and that it be continued in existence by adjournment and further election of delegates, until its objects shall be fulfilled.

Resolved, That the several cities, towns, counties, and manufacturing and mechanic incorporations, for the advancement of agriculture, commerce, manufactures and the mechanic arts, in this State, be respectively and respectfully invited to send delagates to meet in the aforesaid convention, to be selected from the most able and best informed of our fellow citizens.

Resolved, That the foregoing preamble and resolutions be published, and that the publication thereof be and the same is hereby declared to be an invitation to our fellow citizens, included in the above description of persons, to appoint and send delegates accordingly.

EDWIN WILLIAMS, Rec. Sec'ry.

P. S. Editors of papers friendly to internal improvements, are requested to publish the foregoing.

THE CULTURE OF COTTON.—The following remarks are from a source which give them a title to consideration.—[Boston D. Adv.]

"The crop of cotton is turning out much larger than was expected, and will be quite equal to the consumption at present prices. There is no doubt it is very much short of what it would have been, had the season been propitious; nor can the reports of its disasters made by so many of the most eminent men in the country be rejected, from which we may infer that the progressive annual increase of cultivation was much greater than supposed, and that had the season been favorable, the quantity raised would have far exceeded the most extended estimates.

"The production of cotton has more than doubled every nine years since it became a staple of of the United States. In 1816, nearly all Alabama, Mississippi, and Arkansas, and many of the most fertile districts of Georgia, Louisiana, and Tennessee, were a wilderness, the hunting grounds of savages. Florida was a retarded Spanish colony, and the whole negro population in the lower valley of the Mississippi did not exceed sixty thousand. But such has been the unparalleled prosperity of the country, that the Indians have nearly all dispersed out of these regions, the terrors of emigration into the wilderness have vanished, settlements and civilization have extended over the country, canals, railroads, and other useful improvements are rapidly progressing, and banks and factors are ready to grant facilities to planters to extend their estates—which leads to the belief that the annual increase will be greater than ever it has been, particularly as there is an almost unlimited extent of suitable land, and the migration far greater than ever it was from the northern slave states into the fertile cotton districts, where the labor of the slave is so much more valuable than in the grain states, and as cotton at eight cents per pound is the most profitable agriculture in this or any other country.

To those unacquainted with the culture of cotton, it is worthy of remark, that it is the most certain crop planted. The harvest begins in August and ends in February, or when the land is ploughed for a new crop. The bounds of latitude are about 36 degrees; therefore, by far the greatest part of the globe affords a suitable climate. The last crop in the United States is considered by the most experienced planters the shortest return for the labor, of any since its cultivation became an object of this country. The bordering province of Texas has a large extent of the finest cotton lands in America; but as it belongs to the Mexican Republic, where slavery is only tolerated under the name of apprenticeship, the production of cotton there may not increase so fast as many anticipate. It has land capable of producing more cotton than is now raised in the whole United States. The exports last year were about 1000 bales—this year they will be about 3,500, next year they may exceed 8000 bales; and should the climate prove favorable, to white laborers engaging in agriculture, there is no doubt that indigent Germans and other laborious orders of the white race will emigrate and increase the population in a few years to an extent capable of raising a large quantity of this important article.

The Slave population of the United States, by the census of 1800, was 893,041. In 1810, 1,191,364. In 1820, 1,538,038. In 1830, 2,009,043 Slaves and 319,599 free Blacks; which shows they double in about twenty-five years; therefore, according to the ratio, the Slave population at this time is about 2,300,000; to which add the free blacks, and it shows the colored or African race in the United States to be equal to the whole population at the commencement of the Revolution, or nearly the same as the present population of Scotland.

Our statistical estimate shows about 1,100,000 Slaves residing in the Cotton districts, from which number we deduct one half for superanuated, juvenile, mechanics, house servants and others that do not work in the field, and it shows a force of 550,000 field hands engaged in raising Cotton, exclusive of a number of white persons and free negroes. The reduction of one half on the slave population is the usual allowance that statistical computators have made to ascertain the effective force of field hands; and as this data has been formed on the slave population in the older or Northern Slave States, where the habits and customs are more indulgent than in the new and more enterprising regions, it leads to the belief, that the proportion of field laborers in the new States is greater than in the old. We should add our statistical estimate, but the document is too voluminous for a commercial letter.

In the Atlantic States, North Alabama and Tennessee, 2 1-2 to 3 1-2 bales to the field hand is the the usual return. In Louisiana, Mississippi, and South Alabama, from 4 to 10 bales is the return—besides raising provisions; but in some situations, where the return of cotton is the greatest, some of planters find it more for their interest to purchase provisions than to raise them. The quantity of clean cotton made per annum, varies from [illegible] to 600 pounds, each hand cultivates about [illegible] ten acres.

In 1825, it was estimated that [illegible] slaves engaged in the cultivation of cotton, was the number of 230,000 field hands. The [illegible] export of 1825-6, was 710,000 bales, or more than double that of 1816-17. This year we estimate the force at 550,000 field hands, but the increase has been much the greatest in the most productive districts, which by the usual rate of return, would make a crop of over 1,800,000 bales.

Again, if we take the increase as doubling every nine years, it would give a crop for 1835-6, double that of 1826-7 (937,000 bales,) or over 1,800,000 bales, which nearly corresponds with the statistical estimates.

These views exhibit a surprising increase and a capability of producing to an extent few are aware of.

It takes at least two years to bring lands into crop. The highest prices of 1817-'18, exhilarated the production which came forward in 1821—that crop being over 40 per cent. more than the crop preceding it. The reduction of prices in 1819 deterred such rapid extension until the advance in 1824-'25, which gave an extraordinary stimulus to the cultivation, which caused the exports of 1827 to be near 33 1-3 per cent. more than the year preceding. The advance in price during the last three years, (and the facilities as noticed in the same paragraph,) would have no doubt showed a large increase this year, had it not been for the unparalleled injury done to the crops; and therefore taking the increase of the periods quoted as an example, it leads to the conclusion that this year the United States is capable of raising 1,800,000 bales, if the season should be propitious.

The growing crop is very promising, and the high prices have stimulated the cultivation so much beyond its usual progression, that should the season continue propitious, there will be a quantity raised far greater than almost any suppose. Those who hold high priced cotton, should consider that the new crop will be at hand in a few weeks, and that it may prove much larger than almost any contemplate, and that present prices may fall 50 per cent. without being as low as they had been when trade was good and stocks moderate.

[COMMUNICATED FOR THE NEW YORK AMERICAN.]

Extract of a letter from a gentleman who has been travelling through the greater part of the State this summer.

ITHACA, September —, 1835.

"I am very much inclined to believe that, in the universal rage which has so prevailed of late among our farmers, to remove to the far west, many advantages are overlooked nearer home. I could not help thinking so, lately, when passing a few days in the town of Binghamton, in Broome county, which is certainly one of the most beautiful little towns in the State. It is situated on a plain, at the junction of the Susquehannah and Chenango rivers, and surrounded by an ampitheatre of hills. It is regularly laid out, and from appearances, must be a place of considerable business, as I counted between twenty and thirty, three story brick and stone stores, well filled with goods.—There are several churches, and some handsome private residences. Many points in the neighborhood offer very beautiful views, and it has the reputation of being one of the healthiest parts of our country. The canal is rapidly progressing, which is to open a water communication all the way to New York, and the engineers of the New York and Erie Railroad Company are busily engaged, laying out their road, which is to pass near, if not through, the town. Many new buildings have been erected this summer, and more are in contemplation. The flats on the river are well cultivated, and the cleared fields are gradually encroaching on the hills, which offer the finest prospects for the raising of sheep—now the most profitable stock.—The hills are generally covered with white oak, which will soon find its way to the city, in the form of staves. This part of the country, and in fact, all that part of it, generally termed the Southern tier of counties, has been kept almost in a state of nature, for the want of good avenues to market. They will now have them, and the inhabitants will turn their attention from lumbering, to the cultivation of a soil, which, if not so rich as the lands of

the far west are said to be, yet offer many great advantages to compensate the husbandman for his labor. When I was there, they were giving the hands on the canal, fourteen dollars per month and found, with the prospect of work all winter.

I believe if this part of the country were better known it would attract the attention of both emigrants and men of capital."

[From the Mercantile Advertiser.]

THE TOBACCO CROP.—Extract of a letter from a commercial house of the first respectability, to a house in this city, dated—

RICHMOND, October 1, 1835.

"We this morning give you information of a severe and killing frost, which, from all accounts, will greatly injure the now growing crop of tobacco. Some say one half the crop is either cut perfectly green, or bitten with the frost; but we are at all times willing to make allowances, and in this instance will put it down at one-third of the crop, to be injured by the frost, which in this market has already the effect to raise the price of the article."

Another letter from Petersburg, (Va.,) of the same date, to a gentleman in this city, says—

"Prices of tobacco of all grades have advanced, and no doubt will still go higher, as we have had a sharp frost this morning, which has killed a great deal of the crop of tobacco, and also of cotton, both being about a month later than usual."

INDIA RUBBER FABRIC.—A discovery has been recently made by Mr. Charles Goodyear, by which India Rubber after having been dissolved, can be restored by a cheap process to its original whiteness, and the pure gum formed into a fabric to be used instead of cloth, leather, or parchment, and can be moulded into almost any form, and can also be combined in a variety of ways with cloth, cordage, or leather. Being first made white, it admits of every shade of color worked in and as durable as the rubber itself. A variety of fine specimens are now being exhibited at the Mechanics' Institute at Castle Garden, which will give an idea of the general utility of the invention. From our little experience, and that of one of our friends in the use of this fabric, we are disposed to the opinion that it is valuable, and the invention one of importance.—[Jour. Com.]

The New-York American gives the amount collected for tolls on the Pennsylvania canals and railroads at $581,000, for the fiscal year ending on the 12th of September; and adds that this sum is about one-half of the amount collected on the New-York canals for the same time. In this comparison the American must have referred to the amount of tolls collected during the present season of navigation, on the New-York canals, which amounts to something more than a million of dollars, and not to the receipts for the fiscal year. The whole sum received for tolls on the New-York canals from the 30th of Sept., 1834, to the 30th Sept. 1835, will not vary much from $1,500,000.—[Alb. Argus.]

THE WESTERN TRADE.—The Pennsylvania Canal to Pittsburgh, and the Erie Canal from Albany to Buffalo, are rivals for the trade of Ohio.—That part of Ohio which borders on Lake Erie, and upon the Ohio Canal, which commences at Cleveland, has access to the New York market at a less cost than to that of Philadelphia, whereas the lower part of that State, which borders upon the river Ohio, finds Philadelphia its natural market. The merchants in purchasing their foreign goods study the question of freight, with a nicety of calculation almost as refined as that practised at the mint. Upon articles possessing much bulk and little value, the difference of a few cents per 100 pounds in the expenses of transportation, is of considerable importance, involving perhaps the most of their profit, and hence they give a preference to the route which leaves most money in their pockets. The tolls of the present season have been favorable to the New York Canal, and many goods have been sold this summer in Philadelphia, groceries, as well as dry goods, upon the condition that the seller would pay the freight to New York. After the completion of the canal now in progress, between Pittsburgh and the Ohio Canal, this advantage of the New York canal over ours will disappear.—Goods may be sent to Cleveland from Philadelphia as cheap as they can from New York, and we shall enjoy the advantage besides of three months navigation whilst the New York Canal is frozen up.—[Philad. Gaz.]

ST. JOSEPH'S, FLORIDA.—This is a new town, recently laid out on St. Joseph's Bay; to which place the principal inhabitants of Apalachicola are about to remove, owing partly to a difficulty about their land titles in that town, which are derived from Spanish grants, but mainly to the superior natural advantages of St. Joseph's over Apalachicola. St. Joseph's is said to be the finest harbor upon the Gulf of Mexico, superior to Pensacola, there being twenty-three feet of water at the former and twenty-one only at the latter port over the bar, and the harbor is so formed that like Newport, in Rhode Island, vessels can always enter it. As nearly the whole coast of the Gulf is belted with sandbars, which present an impassable barrier to vessels of a large depth of water, St. Joseph's which is almost a solitary exception on the Florida coast cannot fail to increase rapidly in population, and in a very short time to raise into great commercial importance.—To the natural advantages of the place, the enterprising settlers carry with them capital, intelligence, and untiring industry.

The inhabitants, though yet scarcely located there, are building wharves and roads and making other improvements, and have contracted for a Railroad to Lake Wimico, six miles, which is to be finished this year.—This opens a communication with the Apalachicola river, and thus completes the communication with Columbus, Georgia.—[Boston Post.]

OHIO STEAMBOATS.—We are informed on good authority that the number of boats built the present year between Louisville and Pittsburgh, including those places, will not fall short of *fifty*.—About 35 of these are for distant parts of the country—for the southern and westernmost States: the remaining 15 will be added to our river trade, increasing the number of boats thus employed to about 60. Supposing the amount of freight conveyed in each boat to be 40 tons down and 20 up, some opinion may be formed of the amount of merchandise transported yearly upon the Ohio.—The river may be estimated to be navigable from six to eight months in the year, and each boat to perform twelve trips from Wheeling to Louisville and back. Each boat, then, transports 12 times 40 tons down, and half this quantity up, equal to 720 tons. This, multiplied by 60, the number of boats, gives 43,200 tons as the gross amount of merchandise transported yearly in steamboats upon the Ohio.

To fix the value of this merchandise is not so easy. Yet something like accuracy may be obtained. It is said that a wagon load of dry goods, weighing 2 tons, will cost about 4,000 dollars, and that western merchants who purchase 8,000 dollars' worth receive them generally in two wagon loads. This would make a ton of dry goods worth 2,000 dollars. As grosser and heavier articles, however, are sent down the river in large quantities, the value per ton may be rated at 500 dollars. Forty times 500 give $20,000 as the value of each cargo; this, multiplied by 12, gives 240,000 as the amount conveyed by each boat during the season; and this multiplied by 60, the number of boats, gives the sum of 14,800,000 dollars as the value of the down freight in a single year. This is independently of the merchandise conveyed in keel and flat boats, and the immense amount of lumber which almost covers the face of the river in the spring season. The value of the merchandise transported up the river may be estimated at about 1,500,000 dollars. Making the total value of merchandise transported in steamboats yearly on the Ohio, upwards of sixteen millions of dollars.—[Wheeling Gazette.]

Enlargement of the Erie Canal.

MEETING AT ROCHESTER.—At an adjourned meeting of the citizens of Rochester, held at the Court House, on the evening of the 21st of September, ult., Gen. *Jacob Gould* was appointed Chairman, and *E. Darwin Smith, Esq.*, Secretary. The committee of forty, selected at the previous meeting, to whom was referred the contemplated enlargement of the Erie Canal, presented the following memorial and resolutions, which had been reported to that committee by their sub-committee, composed of Myron Holley, Jesse Hawley, David S. Bates, Lyman B. Langworthy and Henry O'Reilly, as their report, which having been considered an adopted, was ordered to be presented to our citizens for signature, and then transmitted to the Canal Board previous to their meeting, on the 20th of October next.

The committee who submitted to the meeting the report of the Canal Board, made to the Legislature on the 30th day of March last, and the letter of the Engineers, dated March 23, 1835, addressed to the Canal Board, as fully sustaining, in its statements, and reasoning, the enlargement of the Erie Canal, to the dimensions of eighty feet width and eight feet depth. On consideration of these documents it was ordered that such parts of the report and the letter of the Engineer's as should be pertinent to the object of this meeting, should be republished and circulated under the direction of a committee of publication and correspondence.

MEMORIAL.

To the honorable the Canal Board of the State of New York.

The subscribers to this memorial are residents of the State near the line of the Erie canal; and many of us have long been, and still are, extensively engaged in the business of transportation upon it. We have habitually observed its effects, and shared in its influences; and suppose no private members of the community have been more incited by interest, or had better opportunities to understand all its bearings upon public and private prosperity.

We were exceedingly gratified with that enlightened regard to one of the most important subjects of their care, which led the Legislature, in May last, to provide for the enlargement of this great work. And we congratulate each other upon the wisdom, which placed the time, and mode, and measure, of such enlargement, in the almost unrestricted discretion of the Canal Board; and more especially as the law to which we refer, was passed, after due reflection and deliberation, upon your resort of 30th March preceding. That able document, with the scientific and satisfactory letter appended to it, addressed to your honorable body by three of your engineers, appears to us to indicate the most obvious and efficient means of giving the happiest development to the great system of internal improvement, which this State has so long, and so profitably pursued.

With such impressions we ask leave to offer to your consideration the following resolutions and statement:

1st. Resolved, That the interests of this State require that the capacity of the Erie canal from Albany should be greatly enlarged.

2d. Resolved, That as a capacious navigable outlet to connect the trade of our large upper lakes, with the Atlantic, the extent of this enlargement should be adapted to the exigencies of a commerce greater than was ever carried on in the interior of any continent; and that it should be limited only by such dimensions as will require the least practicable power of traction in boats carrying at least one hundred and twenty tons burthen, and in such numbers as will ultimately require double locks for their transit.

3d. Resolved, That our observations, calculations and experience, confirm us in the opinion, that such dimensions cannot be less than eighty feet width of water at the surface, with eight feet depth.

4th. Resolved, That no aqueduct, deep cut, or passage through city improvements, should be constructed on a less width of water, than is sufficient freely to float two boats of the aforesaid tonnage, abreast.

5th. Resolved, That the locks, and other improvements hereafter to be constructed on the canal, should all be adapted to the proposed scale of enlargement.

6th. Resolved, That it will become the policy of this State, as soon as it may be consistent with its constitutional charter, to complete the enlargement of her great artificial water-way; and then to provide liberally for all the ramifications from this *spinal cord* of her internal navigation.

7th Resolved, That we deem the construction of the Erie Cnnal on its present dimensions, as a measure of economy wisely adapted to the greater work which we now contemplate; insomuch, that if our present views had been originally entertained by judicious and practical statesmen, they would have been amply justified in giving it such minor dimensions:

1st. As a large experiment to convince the incredulous of the advantages of the work:

2. As the most useful engine which could have been devised to facilitate the ulterior construction.

5th. Resolved, That considering the natural advantages which the State of New-York possesses in her population, her wealth, her experience, her enterprise, and her reputation, to obtain and secure the trade of the Western Lakes and a portion of the valley of the Ohio, it belongs to her enlightened statesmen, to accomplish a work which will contribute so largely to the individual wealth and public prosperity of her citizens; and merit the benedictions and gratitude of posterity.

JESSE HAWLEY,
TIMOTHY CHILDS,
ISAAC HILLS,
LYMAN B. LANGWORTHY,
JACOB GOULD,
THOMAS H. ROCHESTER,
Committee of Publication and Correspondence.

THE DISTRICT SCHOOL, OR NATIONAL EDUCATION; by J. ORVILLE TAYLOR—third edition, Philadelphia, CAREY, LEA & BLANCHARD.—In apprising our readers of this new edition of Mr. *Orville Taylor's* capital book on popular education, we are glad of the opportunity of stating, that upwards of three thousand copies of it, have previously been sold. This augers well, as to the desire of the public to be informed, which is the first step to improvement. This third edition has been, in great part, as we learn from the preface, re-written; Two new chapters have been added—No. VII., in favor of Seminaries for teachers, and No. XIX., urging the study of natural history in our common schools—and many valuable notes have been added. The book is also now divided into paragraphs, to adapt it to the use of schools, as a reading class book.

We cannot better occupy a little more space, perhaps, than by stating that the author of this volume has, during the past summer, been on a missionary tour throughout our State, to inculcate the necessity of improving our Common Schools, and of calling attention to the advantages offered by the law of the last Legislature, authorizing the establishment of small district libraries. The result of this mission has been satisfactory. In many districts the necessary tax has been voted, and in all, where Mr. Taylor had an opportunity of stating the case, good seed, it is hoped, has been sown, of which some, it is reasonable to believe, will ripen into fruits of knowledge and virtue. While writing this paragraph, we have received the Oneida Whig, in which we find the proceedings of a large meeting, held at Utica, on this subject—and in order to show the spirit in which they were conducted, we annex the resolutions:

ONEIDA COUNTY COMMON SCHOOL CONVENTION.—At a numerous Convention of teachers and others, inhabitants of Oneida county, interested in the subject of Common School Education, held at the Academy in the city of Utica, on the 24th day of September instant, Alvan Stewart, Esq. was called to the Chair, and James Watson Williams appointed Secretary.

The Convention was briefly addressed by the Hon. Hiram Denio, and the following resolution proposed by him, was unanimously adopted:

Resolved, That universal education is an indispensable concomitant of popular institusions, and that it is the obvious dictate of patriotism, to provide that the diffusion of intelligence shall be co-extensive with the elective franchise.

The Chairman (A. Stewart, Esq.) then proposed the following resolutions, which, after some remarks by the mover and other gentlemen, were adopted:

Resolved, as the sense of this Convention, That we perceive great wisdom and patriotism in the act of the Legislature of this State passed at its last session, by which each school district of the State is authorised to appropriate twenty dollars for creating a school library in such district, with such further sum as may be necessary for a book case, and also to raise ten dollars annually for the increase of such library.

Resolved, That we recommend that the several school districts of Oneida county accept the provisions of the said act, and make all needful preparations to carry the same into full effect; believing that it will be a most important step towards perpetuating the liberties of the people, by the diffusion of moral intelligence, and the cultivation of the human mind.

Resolved, That our sister counties be invited to accept of the great benefits to be derived from the library law.

Resolved, as the sense of this Convention, That the late conduct of Pennsylvania, in suspending her common school system, is an alarming symptom, and cannot but in some degree impair the confidence of mankind in the perpetuity of our institutions, and it becomes the State of New York to march forward to further improvement in our common school system by legislation and otherwise.

Resolved, That we admire the noble and patriotic course pursued by the representative governments of Prussia and France, in relation to learning in general, and common education in particular; and we would commend Prussia as a model for the world, as under her system it will be found more difficult to escape education than to acquire it.

Resolved, That it is with pleasure that we commend Mr. J. Orville Taylor, the author of the "District School," to the public as a gentleman of of talents, who, as his book will show, is a reformer of the abuses of the age in the common schools of our country.

Resolved, That we recommend that each school district purchase "the District School" as an interesting volume of the twenty dollar library.

Resolved, That the thanks of this Convention be presented to Cornelius W. Lawrence and Jas. G. King, trustees of the Common School Mission, and their associates, for their liberality in employing Mr. Taylor to visit the Common Schools of this State with a view to their improvement and elevation.

On motion of Dr. C. B. Coventry, it was

Resolved, That this Convention consider the appointment of agents to visit and examine into the actual condition of our Common Schools, as of vital importance, and absolutely necessary, in order to derive the greatest possible benefit from our common school fund.

Resolved, That the members of this Convention use their influence, and invite the co-operation of their fellow-citizens, to procure the appointment of such agents under the direction of the Legislature.

On motion of Mr. Williams,

Resolved, That the teachers of the several school districts in the county of Oneida, be requested to act as a committee in their several districts, for the purpose of awakening the attention of the inhabitants to the provisions of the law relating to district libraries, and forming libraries in pursuance of that law.

After expressing his thanks for the hearty co-operation he had received from his fellow-citizens of the county, Mr. Taylor asked the privilege of introducing the following resolutions, which were unanimously adopted:

Resolved, That this Convention deem it absolutely necessary as a first step to be taken for the improvement of our Common Schools, that the intelligent, prominent men of every school district give their *influence, respect, and patronage* to the *district school.*

Resolved, That this Convention believe that the character of our Common Schools is in a great measure in the hands of parents; and that it is the high duty of parents to their country, to the peace of society, and the individual happiness of their children, to *adequately reward*, respect and co-operate with their common school teachers.

Resolved, That this Convention, to insure the natural and necessary working of our excellent school system, most sincerely and earnestly request every commissioner, inspector and trustee, parent and teacher, to co-operate with the school act, which is wisely intended, with such a co-operation on the part of the people, to give every child and youth in our State, that *kind* and *degree* of knowledge which our institutions demand.

In connection with this subject, we have great pleasure in referring to a book, now in the Harpers' press, under the following title:

THE CITIZEN'S MANUAL; being a Digest of the Laws of the State of New York and of the United States, which relate to crimes and their punishments, and of such other parts of the Laws of the State of New York, relating to the ordinary business of social life, as are most necessary to be generally known; with explanatory remarks: to which is prefixed an Essay on Civil Government: designed for the instruction of young persons in general, and especially for the use of schools. By ALFRED CONKLING.

Judge Conkling, who presides as District Judge of the United States, for the northern district, has prepared this volume with direct reference to schools, and with the desire of adding his contribution to the patriotic efforts now making to improve, and extend, common education. We have not had any opportunity of examining this work, but may, in all confidence, bespeak for it—from Judge Conkling's habits of investigation and pursuits—a favorable reception.

RAILROAD "MONOPOLIES."—The following sound and forcible remarks were made by A. Stewart, Esq. of Utica, N. Y. in the course of an address delivered before the Convention recently held at Oswego, for the purpose of furthering the great undertaking of the railroad from the Hudson to Lake Erie.

What has been done on the subject of railroads and canals in New-York, Pennsylvania and Ohio, in the last seventeen years, will exceed all that has been done by Europe from the morning of time. The sister States will be laid under lasting obligation to New-York, for her great example in the work of internal improvements, which has given new impulse to the affairs of mankind.

What better could New-York do with the vastness of her resources, than judiciously expend 100 millions of dollars in railroads and canals? Every dollar would be quadrupled in private and public benefit.

The world has been exhausted by all her resources, hitherto, in *War* and *Architecture*. The war-wasted resources of the world, would have made every inch of land a garden, from the regions of eternal ice to the burning line.

Our late patriotic war cost us 130 millions of money, which would have made us ten thousand miles of railroad and canal. Had this 130 millions been so appropriated, it would have left my country ahead of the world.

Look at the waste of public money and human labor, in the useless architecture of the pyramids, those "piles of wonder," and "sleeping places of death," mere pride and ostentation! The proud monarchs by whom built, their names have perished from the records of human remembrance; the same labor and money would have united the Nile and Red Sea, the Persian Gulf; and saved the long and dangerous navigation around the Cape of Good Hope.

Look at the Languedoc Canal—the only monument likely to rescue the memory of Louis 14th from oblivion; but what was this expenditure compared with the waste of money on building the palaces, and making the wild hills of rocks and fictitious lake at Versailles?—amounting to the enormous sum of 400 millions of dollars—a sum sufficient to have brought a railroad and canal to the gate of every city and village in France, and left a direct communication between such city and village, and the Mediterranean and Atlantic.—These same palaces at Versailles are now a frightful solitude; nothing is seen but an old decayed officer hobbling over the piles of sculpture and through empty palaces, to show the stranger and travellers those vacant abodes of the departed enemies of man.

The energies of the Grecian and Roman nations were squandered upon those expensive erections of marble which inflamed pride and ambition without benefiting the commerce of those nations. What would have made ten miles of canal, was expended on the *polish* of the columns of a heathen temple.

Look at modern Europe, covered with abbeys, castles, and the nonsense of kings, by which the power of the nation has been wasted in the pride of architecture.

The money spent on any one of the 1000 wars of Europe would have connected the Indian ocean with the Mediterranean, and the Pacific with the Atlantic by the Isthmus of Darien; and the too often disastrous navigation around Cape Horn and that of Good Hope might have been avoided, and the navigation of the globe shortened one-half.

But the modern cry which has been heard against improvements of this lovely land, is the senseless cry of Monopoly!—Monopoly!—Monopoly! A rail road is a wonderful monopoly,—in which the rich man's money is expended in making the poor man's road. Take for example the contemplated railroad from Utica to Schenectady, 80 miles; it is found that 200,000 poor persons pass over this road now, in a year, the stage fare is $3—time in bad going 34 hours, in good 12. Contemplated price for a poor man on the railroad, $1—to go through in four hours saves $2 in money—but he saves his own capital—*time*. The Rich built the last described road, and distribute of positive benefits among the Poor (supposing 200,000 to travel over it)—no less than $2 each, or $400,000 among 200,000 persons. Which will divide the greatest profit, the Rich men who own the stock, or the Poor men who travel the road?

But this is not all; the rich men think it hard to spend any more than their income, and encroach upon their principal. But the poor man, when he spends a day or an hour of time in travelling, is spending, so far as time is concerned, his very capital—for his only capital is time. A railroad is an annihilator of distance, and a time saver, and therefore the poor man's friend—and when he uses it, it takes less of his capital than any other mode.—Rich men ought to be compelled to make railroads through the great thoroughfares of the land, at a just toll; as by this means the money of the rich benefits the poor man, stranger, and traveller, as much as it does the rich. The poor man gets a benefit from this monopoly every time he uses the road; the stockholder gets his dividend again in six months on the road; but the poor man gets his dividend as often as he finds it necessary to use the road. But forbid the rich to invest their money in these railroads, and they will purchase out the farmers. The 60, 75, 100, and 150 acre farmer, without any outlet for his produce, sells one after another to the rich man, who buys out 100,000 acres, and leaves no freeholder, until his plantation reaches another rich man's. Who have these rich men under them? Not the sturdy owner of the soil—but the grovelling tenant, the cattle tender, the shepherd and his minions. Then, for want of the monopolies or railroads, benefiting the whole land through which they pass, making each little freeholder's farm a garden, lovely and desirable—our farmers, without roads, sell to the rich, and hie away to the rolling prairies of the far west.

[From the Portsmouth Journal.]

LECTURE ON PRINTING.

Delivered before the Portsmouth Lyceum, by C. W. Brewster.

The periodical Press—Extensive Printing Establishments—Influence of the Press in increasing Knowledge and advocating the Interests of Mankind.

The first Newspaper published at regular intervals was issued monthly at Venice, in Italy, about 250 years since. It was called the Gazetta—signifying a little treasury of news. The number of copies issued of this paper must have been very limited—for the jealousy of the Venetian government would not allow of the circulation of a printed sheet, so that the Gazetta continued to be distributed in Manuscript for more than thirty years. Files of this paper are now extant.

In the whole Chinese empire, although Printing has been so long practised there, but one regular newspaper is published at the present time. It is a sort of court Journal, issued at Pekin, and called Kingpaou, or the Messenger of the Capital.

The Press had been in operation in England nearly a century before a regular periodical was published. In Nov. 1665, the London Gazette was issued weekly, and has been published to the present time.

The first newspaper in the British American Colonies, the Boston News-Letter, was commenced in 1704. The Boston Gazette was commenced in 1719—and the third paper in the Colonies was commenced the same year in Philadelphia, entitled the American Weekly Mercury. The first paper in New York was established in 1725—in Maryland in 1728—Rhode Island and South Carolina in 1733—Virginia in 1736—Connecticut and North Carolina in 1755—New Hampshire in 1756—Delaware in 1761—and in Georgia in 1763.

In 1775, there had been 78 different newspapers printed, 39 of which had been discontinued previous to that time—so that at the commencement of the Revolution there were but 39 papers printed in the U. States—and of the number then printed but eight establishments are now in existence.

In 1810 the whole number of newspapers was three hundred and fifty. There are now about one thousand two hundred newspaper establishments in the United States, from which are issued, at a moderate calculation, 100,000,000 printed sheets annually—which, if in one continuous sheet, would reach four times from pole to pole—and if embodied in a book form, would be equal to issuing six volumes as large as the Bible every minute in the year!

The advancement in newspapers has not only been in numbers but in size. The largest paper published about fifty years since, were of the demi size. In about twenty years, some had increased to the super-royal. Within a few years some have grown to the elephant size—and last month a New York publisher presented the public with a full grown mammoth.

We cannot better illustrate one of the causes of the rapid advancement which has been made within a few years in the various branches of morals, than by drawing aside the curtain and disclosing what the Press is doing in one branch—that of Temperance. We shall look only in one office, that of the Temperance Recorder, in Albany.—Sixty workmen are there constantly employed—six presses are kept in operation by steam, and six by hand power. Those are in constant operation, and every working minute of the year are throwing out twenty copies of some Temperance publication—each one intended to go forth and do its work in the public renovation. It is not surprising that any hydra, either in the moral or political world, upon which the press can be brought to bear is more easily vanquished now than in former times—for the sixty printers employed in the office to which we have just referred, exert a greater influence on the public mind, than sixty thousand scribes with their greatest industry, possibly could have exerted 500 years since.

The office of the Harpers, in New York, gives employment to 140 persons. They print on an average an edition of books of the Family Library size, every day in the year. Their expenses are about three hundred dollars per day.

We do not speak of this establishment as standing forth above every other: we do not know but more extensive ones are in operation in our country. At Brattleborough, in our sister state of Vermont, is one which is deserving notice. The printing establishment of Messrs. Fessendens, keeps in operation seven or eight power presses, printing not far from twenty thousand sheets of paper per day. Connected with the establishment is a paper mill at one end, and a book-bindery at the other, so that (like the chrysalis-changing of a vile caterpillar to a beautiful butterfly,) what enters at one end—the cast-off covering of the human body, is by a regular and rapid process brought out at the other extremity, beautiful paper finely printed and bound—a material for a permanent dress of the immortal mind. So rapid is the process by which paper can be made by the power of steam, that rags have been received at that mill in the morning, manufactured into paper and printed before night! The Comprehensive Commentary is now printing at that establishment. When it is completed, it will have consumed fifteen thousand reams of paper.—Think not that the woollen or the cotton manufacturers are the only ones for whose benefit sheep are raised, or cotton imported; for this one work will use up the amount of a thousand bales of cotton in paper—and will require the skins of sixty thousand sheep for its binding!

The most extensive Printing establishment in England at the present time, is that of the 'Society for the Diffusion of Useful Knowledge.' It gives regular employment to thirty-six type founders, seven men damping paper, and 160 compositors.—Besides 15 common presses, two steam engines are employed in driving 18 printing machines, which can throw off from 700 to 1000 impressions each, per hour. There are in the establishment about one thousand works in stereotype, among which are 75 different sets of plates for the Bible. The first cost of these plates was not far from $1,500,000. The average quantity of paper printed amounts weekly to 2000 reams—equal to half the quantity used in all the twelve hundred newspaper establishments in the United States!

We shall only advert to one more extensive establishment, which is probably the largest in the world, it is the *Royal Printing House at Paris*. It contains a sufficient quantity of types to have standing at the same time 125,000 octavo pages, or 500 volumes of 250 pages each. It consumes about the same quantity of paper annually as the London establishment, and gives employment to three hundred and fifty persons.

* * * * * * * *

Our own country as yet has not made that advancement in the accumulation of books which has been made in the seat of literature in Europe.—The thirty-one largest libraries in the United States contain together only 250,000 volumes, while the same number of libraries in Germany contain 3,300,000! Look at these vast assemblages for a moment—the growth of four hundred years only! If they continue to increase at the same ratio, to grasp their contents, the age of man will again have to be extended to the antediluvian length, and perhaps after all be drowned in a second deluge from the portentous clouds of literature! We have, however, but little to fear. Literature, like trade, will regulate itself. The wheat will be sifted out, and the chaff thrown to the winds.

As it is only by the deprivation of blessings that we are enabled to estimate their worth, let us for a moment contemplate the extinction of the Press at this time, in our land and throughout the world. Yes—open the flood gates of Vandalism, and with the press and types let every printed work be swept to destruction—but not with them the recollection that they ever existed. Let nothing be found for the reading world but such manuscripts as may be purchased of the scribes, or copied by our hands. Although the arts generally might be practised in perfection, the earth bring forth her fruits in abundance, the blessings of life be richly bestowed—yet the Press silent—we can hardly imagine a greater blank! How many among us would be found able, if willing, to pay five hundred dollars for a Bible—or one hundred for a common octavo—or a ten dollar bill for a school manual! A ten dollar bill? No, we had forgotten ourselves—without the aid of printing, we should have had no bills or banks either! The lawyer would be compelled to study the public laws from the manuscript records of Legislature, or spend the income of years to obtain a copy—not for his library (for none but a prince would presume upon such an extravagance)—but for his strong box, to be watched over and preserved like the miser's gold. Or perhaps when he enters the courts of justice, we should see in his fringed garments, as in Jewish days, the mementos of his legal knowledge. The Divine, instead of having a thousand volumes within his reach for reference, would be far more fortunate than many of his brethren, if the only work he possessed was a whole bible. The physician, deprived of the knowledge he now derives from the world of skilful practitioners of other times, must rely on the oral instructions of his teacher, and make up the rest of his knowledge from his own personal observation and experience. Whatever discoveries he makes in the healing art, will be sure to be his own: for however benevolent his intentions may be, he can find no press to diffuse his discoveries abroad. If a quack invents some pill, which will, as usual, cure every malady, he must be content with taking it himself, if he will venture to, as he will have no opportunity of sending it, like Samson's foxes, scattering fire brands through the land.

With the channels of knowledge closed, men would rapidly verge back to the ignorance of former times. Aristocracy would extend her coveting and domineering hand to the stores of knowledge, and rejoice in being able to keep others in ignorance. Without the press, there would be nothing like the general conveyance of intelligence from one state to another, or from town to town—it could only be from individual to individual. But why talk of State? The system of our government, over so vast an extent of territory, could not be maintained, and the name of State, in its present relations, would soon be heard no more among us. The chain which binds our Union together would be broken—for we are literally bound together by the Press, and the chains strengthened by the jars of opposing parties in politics, produced by its influence:—without this lightening of the cords, our nation might fall into a state of apathy dangerous to its liberties. Without the Press, there could not be a republican system of government maintained over so extensive a territory as the United States—ignorance must unavoidably exist without its enlightening influence—the laws of each State could not be generally understood in

other and distant States—jealousies would be continually rising up—acts of violence, and civil war. No!—without the Press, the Republic could not exist;—a Monarch, with standing armies, to keep his ignorant and servile subjects, in awe, is the most we could expect without this bulwark of our liberties. * * * *

Due credit has never been given to the Press for the part it performed in the brilliant achievement of our National Independence. It was on the Press that the oppression of the Stamp Act was brought directly to heart: scarcely a newspaper could be found, among the thirty-nine which were then published, which would either willingly or forcibly submit to the imposition of so unjust a tax. The same degree of oppression might have been exercised upon other branches of the Arts, not less sensible of injury, but without the means of arousing the public to a sense of their wrongs, and been meekly borne—but the Stamp Act was bearding the lion in his den! Indignant, he came forth, and shaking his shaggy mane, his roar resounded through the forest, and sympathy for the aggrieved was echoed from every quarter! It can with confidence be said that the newspapers at that time, dressed in mourning, and the place for the British stamp supplied by a Death's Head—distributed generally among the people—did as much in preparing their minds for the Revolution, as a Lafayette, or even a Washington, afterwards did in accomplishing it. Archimedes, in vain glory, boasted that if he had a spot on which to place a fulcrum, he could move the earth! What the ancient son of science proposed in sport to do to the material universe, is now fast doing to the political, scientific, and moral world. A fulcrum has been found!—based on the sunbeams, already has half the world been elevated by its agency—and ere another century, should its influence continue to extend in the ratio of the last twenty years, wisdom will run to and fro throughout the earth—knowledge will everywhere be increased—and the ennobling principles of Liberty and Equality will be every where inculcated.

If it be true that "Knowledge is Power," it requires no extra keenness of vision to discern this fulcrum in THE PRESS.

From a paper in the last American Quarterly, on National Defence.

The consideration of the militia force, and of the means of giving it efficiency, without obstructing the recruiting service of the regular army, comes next to be considered. Nor is it of secondary importance, when we have regard only to its own influence upon the defence of our country.

It has been the opinion of officers who have seen service in all parts of the globe, that the mass of the people of the United States furnishes the finest material for a military force, which exists in any part of the world. Yet, as our militia is at present constituted, it has been reasonably doubted, whether its employment upon emergencies has been productive of most good or evil to the military character of our country. The same description of force, which fled at North Point without seeing an enemy; which broke at Plattsburgh upon the first fire; which refused to cross at Queenstown to complete a victory already gained; manned the weak lines at New Orleans, from which a superior regular force retired completely beaten; and foiled at Plattsburgh, the veterans of the Peninsular wars. It is therefore certain that no reliance can be placed upon the effects a militia force, as at present organized, will produce; for by circumstances not to be predicted, it may either achieve victory, or ensure defeat. This must always be the case, so long as citizens are called on sudden emergencies from their homes, to act as soldiers, and are retained no longer in service than is sufficient to give them a distaste for the profession of arms, without instilling either habits of discipline, or a knowledge of military evolutions. In addition, the demoralizing influence of a succession of calls, which may reach a whole population, is not to be disregarded; for if the moral character of the debased may be raised by the influence of military honor, and curbed by the regularity of military discipline, it is no less true, that a partial acquaintance with the profession of arms, incapacitates for steady civil industry.

The calls for the milita, then, should be of such a nature, that the subject of them must know, that his civil occupations are to be at an end, at any rate, for a term of years, and that his own comforts will be promoted by his acquiring a knowledge of his new business, and at the same time abstaining from the vices which have sometimes been considered the reproach of the life of a camp, but which have never failed to influence a draughted militia.

It is to a military force alone, drawn from all classes of citizens indiscriminately, and officered by the authority of the States, although acting under the call of the general government, that the defence of the country can be safely intrusted. Two wars have witnessed at their close, regular armies dismissed, in the one place without pay, in the other almost with disgrace, and it is not in the nature of things that such events can be repeated without danger. It is calculating too much upon human virtue, to hope that on any future occasion, a large and perhaps successful regular army, shall not be at the beck of its commander, to do whatever he may dictate; nor can it be hoped that if in preponderating force, they will assent to be disbanded, when the purpose for which they are raised is fulfilled. It is far otherwise with a militia force.—However powerfully they may be attached to their standards by patriotism or discipline, a return to their firesides will be a reward instead of a punishment, and the news of a peace will be hailed by such a force with joy, when to regulars it will convey the unwelcome intelligence of their occupation being gone.

That the patriotism of the people of the United States will induce them to bear the fatigues and dangers of military service without a murmur, was fully proved during the late war, in which no small portion of the population was actually called into service. But it is no more than just to such a population, that such a service should be rendered as little onerous as possible, by confining it to the least number of individuals. This can only be done by deciding upon an organization in time of peace, by which the persons to be called upon in case of war, shall be pointed out, and the manner of designating them, and fixing the order of rotation, rendered precise and definite.

The largest call yet made upon the militia, was for 100,000 men, and this may be safely taken as the maximum that can ever be demanded in any future war. In fact the means of concentration at any given point, by the improved modes of conveyance, are so much greater than they formerly were, that a much less force would be needed than was necessary on former occasions. A force of this amount ought to be at once called for by law, although in a time of profound peace, by draughts from militia of all classes and ages, as at present organized; it might be formed into 102 battalions of infantry, organized into 17 brigades. Each battalion should be composed of eight companies or platoons of 32 files, and would make with officers, 800 men. To the 17 brigades should be attached 34 companies of artillery, and as many squadrons of cavalry, The force at first drawn, should be divided according to their ages, into six classes, one of which should be discharged annually. The place of this class, and of all vacancies by death or removal, should be supplied by annual draughts from all citizens between the ages of 20 and 26. The draughts thus constituted should be assembled in the largest body that the nature of the population would admit of, as many times in the year as the militia of the several states is now usually called out, but separate from those not designated by lot, and under the command of the officers designated from the general body for the purpose. For non-attendance at such parades, no other penalty than a pecuniary fine should be imposed. An option should, however, be left to the several States to substitute in whole or in part for draughts from the militia, volunteer corps having a term of service of six years, provided they be officered, and organized in conformity with the war establishment of the United States; say, in battalions of eight platoons, each of thirty-two files, but with the privilege that no more than two-thirds of the number, making a formation of two in depth, should be required to be present, except when called into active service and put upon pay. The laws of the several States give privileges to volunteer corps enrolled for a term shorter than that of the usual military liability, and who equip and arm themselves, which would ensure the creation of an efficient force of this sort, if put under some one general regulation. But such general and uniform regulation is necessary, if we wish to do away the ridicule which is beginning to attach itself to our citizen soldiers. This ridicule, we are sorry to say, is not unmerited, and it cannot be denied that those who have seen service in our trained bands, are far less fitted to make good troops than if they had never donned an uniform. All this reproach may, however, be done away, by making the volunteer battalions permanent, discharging and receiving equal numbers annually, and conferring the privileges due to voluntary service, only upon those who perform it in a corps designated by the State government, in lieu of a drafted militia, as ready to be called at any moment into the general service.—To the sense of pride which our volunteers have exhibited, however mis-directed on most occasions, may be safely committed the care of providing instruction in manœuvres and tactics. It is otherwise with those called out by draught. To give these a chance of being speedily rendered efficient when embodied for service, their non-commissioned officers, to the number of fifty-six to each battalion, ought to be kept in pay, and in constant service. These would form a company, which should be commanded by the adjutant of the battalion, who should also be in constant service, and by three other officers of the battalion serving in monthly rotation. In this way a school for military knowledge would be formed for each portion of the militia, by which a knowledge of the duties both of soldier and officer, would be communicated. The expense of such arrangement would indeed nearly equal that of our present military force, but as it would ensure the action of a well appointed army of 100,000 men upon any emergency, it would be more than defrayed for whole years, by the saving which would ensue in a few weeks of war. It would, moreover furnish a mode of distributing surplus revenues among the States, to which no pretended or actual constitutional objection could apply.

In case of any alarm of war, the whole or any required part of the battalions, might be at once embodied and called into service; first the men whose term of service had not extended to four years, and in case of evasion, the whole. A call of this sort to the extent of twenty-four battalions, would at once set free the whole of the regular force, from the duty of garrisons, and to this the militia battalions ought of course to be devoted until time had been afforded to mature their discipline.

If, upon a call for the active service of the militia, substitutes were accepted, not, however, to enter into the militia, but to be embodied in the regular army, and to serve for the war, a large accession would be at once made to the regular force; and as the demands for substitutes in the militia, and for recruits, would no longer conflict with each other, the filling up of the regular army to the war establishment, might be almost insured by calling the draughted militia into service. The pay, too, of the forced levies of militia, ought not to equal that of the enlisted army, and thus there would be many who would prefer to pass from the militia ranks to those of the standing force.

For an illustration of this part of our subject, we may refer to the histories of the war of the revolution, and of the more recent contest with England. In both of these, it became necessary to embody large draughts from the militia; the consequence was, that the demand for substitutes almost wholly impeded the regular recruiting service, or enhanced the bounties on enlistments to a burthensome extent; and finally the supply of the regular force depended almost wholly upon those persons who, draughted themselves into the embodied militia, could not be accepted as substitutes, but preferred to take the bounty for joining the regular army, to serving without it. It would be impolitic not to accept substitutes, as those who obtain exemption in this way are generally of habits of life which would make them but poor soldiers; and it is still more impolitic to admit such substitutes into the embodied militia itself, and thus cut off the source whence the regular army might be supplied.

FOR SALE,

NEW LEICESTER SHEEP, AND BERKSHIRE PIGS.

A few Rams and Ewes, of pure blood, also Cotwold and New-Leicesters, equal to any in the Union.

ALSO,

A quantity of Berkshire Pigs, (ready for delivery the first week in November next,) directly descended from a part of the Stock imported by S Hawer, Esq., of Albany,—price $5 per head.

A. & G. BRENTNALL.

Hamptonburgh, Orange co. N. Y., Sept. 21st, 1835. 10

9th. Resolved, That considering the natural advantages which the State of New-York possesses in her population, her wealth, her experience, her enterprise, and her reputation, to obtain and secure the trade of the Western Lakes and a portion of the valley of the Ohio, it belongs to her enlightened statesmen, to accomplish a work which will contribute so largely to the individual wealth and public prosperity of her citizens; and merit the benedictions and gratitude of posterity.

JESSE HAWLEY,
TIMOTHY CHILDS,
ISAAC HILLS,
LYMAN B. LANGWORTHY,
JACOB GOULD,
THOMAS H. ROCHESTER,
Committee of Publication and Correspondence.

THE DISTRICT SCHOOL, OR NATIONAL EDUCATION; by J. ORVILLE TAYLOR—third edition, Philadelphia, CAREY, LEA & BLANCHARD.—In apprising our readers of this new edition of Mr. *Orville Taylor's* capital book on popular education, we are glad of the opportunity of stating, that upwards of three thousand copies of it, have previously been sold. This augers well, as to the desire of the public to be informed, which is the first step to improvement. This third edition has been, in great part, as we learn from the preface, re-written; Two new chapters have been added—No. VII., in favor of Seminaries for teachers, and No. XIX., urging the study of natural history in our common schools—and many valuable notes have been added. The book is also now divided into paragraphs, to adapt it to the use of schools, as a reading class book.

We cannot better occupy a little more space, perhaps, than by stating that the author of this volume has, during the past summer, been on a missionary tour throughout our State, to inculcate the necessity of improving our Common Schools, and of calling attention to the advantages offered by the law of the last Legislature, authorizing the establishment of small district libraries. The result of this mission has been satisfactory. In many districts the necessary tax has been voted, and in all, where Mr. Taylor had an opportunity of stating the case, good seed, it is hoped, has been sown, of which some, it is reasonable to believe, will ripen into fruits of knowledge and virtue. While writing this paragraph, we have received the Oneida Whig, in which we find the proceedings of a large meeting, held at Utica, on this subject—and in order to show the spirit in which they were conducted, we annex the resolutions:

ONEIDA COUNTY COMMON SCHOOL CONVENTION.—At a numerous Convention of teachers and others, inhabitants of Oneida county, interested in the subject of Common School Education, held at the Academy in the city of Utica, on the 24th day of September instant, Alvan Stewart, Esq. was called to the Chair, and James Watson Williams appointed Secretary.

The Convention was briefly addressed by the Hon. Hiram Denio, and the following resolution proposed by him, was unanimously adopted:

Resolved, That universal education is an indispensable concomitant of popular institutions, and that it is the obvious dictate of patriotism, to provide that the diffusion of intelligence shall be co-extensive with the elective franchise.

The Chairman (A. Stewart, Esq.) then proposed the following resolutions, which, after some remarks by the mover and other gentlemen, were adopted:

Resolved, as the sense of this Convention, That we perceive great wisdom and patriotism in the act of the Legislature of this State passed at its last session, by which each school district of the State is authorised to appropriate twenty dollars for creating a school library in such district, with such further sum as may be necessary for a book case, and also to raise ten dollars annually for the increase of such library.

Resolved, That we recommend that the several school districts of Oneida county accept the provisions of the said act, and make all needful preparations to carry the same into full effect; believing that it will be a most important step towards perpetuating the liberties of the people, by the diffusion of moral intelligence, and the cultivation of the human mind.

Resolved, That our sister counties be invited to accept of the great benefits to be derived from the library law.

Resolved, as the sense of this Convention, That the late conduct of Pennsylvania, in suspending her common school system, is an alarming symptom, and cannot but in some degree impair the confidence of mankind in the perpetuity of our institutions, and it becomes the State of New York to march forward to further improvement in our common school system by legislation and otherwise.

Resolved, That we admire the noble and patriotic course pursued by the representative governments of Prussia and France, in relation to learning in general, and common education in particular; and we would commend Prussia as a model for the world, as under her system it will be found more difficult to escape education than to acquire it.

Resolved, That it is with pleasure that we commend Mr. J. Orville Taylor, the author of the "District School," to the public as a gentleman of of talents, who, as his book will show, is a reformer of the abuses of the age in the common schools of our country.

Resolved, That we recommend that each school district purchase "the District School" as an interesting volume of the twenty dollar library.

Resolved, That the thanks of this Convention be presented to Cornelius W. Lawrence and Jas. G. King, trustees of the Common School Mission, and their associates, for their liberality in employing Mr. Taylor to visit the Common Schools of this State with a view to their improvement and elevation.

On motion of Dr. C. B. Coventry, it was

Resolved, That this Convention consider the appointment of agents to visit and examine into the actual condition of our Common Schools, as of vital importance, and absolutely necessary, in order to derive the greatest possible benefit from our common school fund.

Resolved, That the members of this Convention use their influence, and invite the co-operation of their fellow-citizens, to procure the appointment of such agents under the direction of the Legislature.

On motion of Mr. Williams,

Resolved, That the teachers of the several school districts in the county of Oneida, be requested to act as a committee in their several districts, for the purpose of awakening the attention of the inhabitants to the provisions of the law relating to district libraries, and forming libraries in pursuance of that law.

After expressing his thanks for the hearty co-operation he had received from his fellow-citizens of the county, Mr. Taylor asked the privilege of introducing the following resolutions, which were unanimously adopted:

Resolved, That this Convention deem it absolutely necessary as a first step to be taken for the improvement of our Common Schools, that the intelligent, prominent men of every school district give their *influence, respect, and patronage* to the *district school.*

Resolved, That this Convention believe that the character of our Common Schools is in a great measure in the hands of parents; and that it is the high duty of parents to their country, to the peace of society, and the individual happiness of their children, to *adequately reward,* respect and co-operate with their common school teachers.

Resolved, That this Convention, to insure the natural and necessary working of our excellent school system, most sincerely and earnestly request every commissioner, inspector and trustee, parent and teacher, to co-operate with the school act, which is wisely intended, with such a co-operation on the part of the people, to give every child and youth in our State, that *kind* and *degree* of knowledge which our institutions demand.

In connection with this subject, we have great pleasure in referring to a book, now in the Harpers' press, under the following title:

THE CITIZEN'S MANUAL; being a Digest of the Laws of the State of New York and of the United States, which relate to crimes and their punishments, and of such other parts of the Laws of the State of New York, relating to the ordinary business of social life, as are most necessary to be generally known; with explanatory remarks: to which is prefixed an Essay on Civil Government: designed for the instruction of young persons in general, and especially for the use of schools. By ALFRED CONKLING.

Judge Conkling, who presides as District Judge of the United States, for the northern district, has prepared this volume with direct reference to schools, and with the desire of adding his contribution to the patriotic efforts now making to improve, and extend, common education. We have not had any opportunity of examining this work, but may, in all confidence, bespeak for it—from Judge Conkling's habits of investigation and pursuits—a favorable reception.

RAILROAD "MONOPOLIES."—The following sound and forcible remarks were made by A. Stewart, Esq. of Utica, N. Y. in the course of an address delivered before the Convention recently held at Oswego, for the purpose of furthering the great undertaking of the railroad from the Hudson to Lake Erie.

What has been done on the subject of railroads and canals in New-York, Pennsylvania and Ohio, in the last seventeen years, will exceed all that has been done by Europe from the morning of time. The sister States will be laid under lasting obligation to New-York, for her great example in the work of internal improvements, which has given new impulse to the affairs of mankind.

What better could New-York do with the vastness of her resources, than judiciously expend 100 millions of dollars in railroads and canals? Every dollar would be quadrupled in private and public benefit.

The world has been exhausted by all her resources, hitherto, in *War* and *Architecture.* The war-wasted resources of the world, would have made every inch of land a garden, from the regions of eternal ice to the burning line.

Our late patriotic war cost us 130 millions of money, which would have made us ten thousand miles of railroad and canal. Had this 130 millions been so appropriated, it would have left my country ahead of the world.

Look at the waste of public money and human labor, in the useless architecture of the pyramids, those "piles of wonder," and "sleeping places of death," mere pride and ostentation! The proud monarchs by whom built, their names have perished from the records of human remembrance; the same labor and money would have united the Nile and Red Sea, the Persian Gulf; and saved the long and dangerous navigation around the Cape of Good Hope.

Look at the Languedoc Canal—the only monument likely to rescue the memory of Louis 14th from oblivion; but what was this expenditure compared with the waste of money on building the palaces, and making the wild hills of rocks and fictitious lake at Versailles?—amounting to the enormous sum of 400 millions of dollars—a sum sufficient to have brought a railroad and canal to the gate of every city and village in France, and left a direct communication between such city and village, and the Mediterranean and Atlantic.—These same palaces at Versailles are now a frightful solitude; nothing is seen but an old decayed officer hobbling over the piles of sculpture and through empty palaces, to show the stranger and travellers those vacant abodes of the departed enemies of man.

The energies of the Grecian and Roman nations were squandered upon those expensive erections of marble which inflamed pride and ambition without benefiting the commerce of those nations. What would have made ten miles of canal, was expended on the *polish* of the columns of a heathen temple.

Look at modern Europe, covered with abbeys, castles, and the nonsense of kings, by which the power of the nation has been wasted in the pride of architecture.

The money spent on any one of the 1000 wars of Europe would have connected the Indian ocean with the Mediterranean, and the Pacific with the Atlantic by the Isthmus of Darien; and the too often disastrous navigation around Cape Horn and that of Good Hope might have been avoided, and the navigation of the globe shortened one-half.

But the modern *cry* which has been heard against improvements of this lovely land, is the senseless cry of Monopoly!—Monopoly!—Monopoly! A rail road is a wonderful monopoly,—in which the rich man's money is expended in making the poor man's road. Take for example the contemplated railroad from Utica to Schenectady, 80 miles; it is found that 200,000 poor persons pass over this road now, in a year, the stage fare is $3—time in bad going 34 hours, in good 12. Contemplated price for a poor man on the railroad, $1—to go through in four hours saves $2 in money—but he saves his own capital—*time*. The Rich built the last described road, and distribute of positive benefits among the Poor (supposing 200,000 to travel over it)—no less than $2 each, or $400,000 among 200,000 persons. Which will divide the greatest profit, the Rich men who own the stock, or the Poor men who travel the road?

But this is not all; the rich men think it hard to spend any more than their income, and encroach upon their principal. But the poor man, when he spends a day or an hour of time in travelling, is spending, so far as time is concerned, his very capital—for his only capital is time. A railroad is an annihilator of distance, and a time saver, and therefore the poor man's friend—and when he uses it, it takes less of his capital than any other mode.—Rich men ought to be compelled to make railroads through the great thoroughfares of the land, at a just toll; as by this means the money of the rich benefits the poor man, stranger, and traveller, as much as it does the rich. The poor man gets a benefit from this monopoly every time he uses the road; the stockholder gets his dividend again in six months on the road; but the poor man gets his dividend as often as he finds it necessary to use the road. But forbid the rich to invest their money in these railroads, and they will purchase out the farmers. The 60, 75, 100, and 150 acre farmer, without any outlet for his produce, sells one after another to the rich man, who buys out 100,000 acres, and leaves no freeholder, until his plantation reaches another rich man's. Who have these rich men under them? Not the sturdy owner of the soil—but the grovelling tenant, the cattle tender, the shepherd and his minions. Then, for want of the monopolies or railroads, benefiting the whole land through which they pass, making each little freeholder's farm a garden, lovely and desirable—our farmers, without roads, sell to the rich, and hie away to the rolling prairies of the far west.

[*From the Portsmouth Journal.*]

LECTURE ON PRINTING.

Delivered before the Portsmouth Lyceum, by C. W. Brewster.

The periodical Press—Extensive Printing Establishments—Influence of the Press in increasing Knowledge and advocating the Interests of Mankind.

The first Newspaper published at regular intervals was issued monthly at Venice, in Italy, about 250 years since. It was called the Gazetta—signifying a little treasury of news. The number of copies issued of this paper must have been very limited—for the jealousy of the Venetian government would not allow of the circulation of a printed sheet, so that the Gazetta continued to be distributed in Manuscript for more than thirty years. Files of this paper are now extant.

In the whole Chinese empire, although Printing has been so long practised there, but one regular newspaper is published at the present time. It is a sort of court Journal, issued at Pekin, and called Kingpaou, or the Messenger of the Capital.

The Press had been in operation in England nearly a century before a regular periodical was published. In Nov. 1665, the London Gazette was issued weekly, and has been published to the present time.

The first newspaper in the British American Colonies, the Boston News-Letter, was commenced in 1704. The Boston Gazette was commenced in 1719—and the third paper in the Colonies was commenced the same year in Philadelphia, entitled the American Weekly Mercury. The first paper in New York was established in 1725—in Maryland in 1728—Rhode Island and South Carolina in 1733—Virginia in 1736—Connecticut and North Carolina in 1755—New Hampshire in 1756—Delaware in 1761—and in Georgia in 1763.

In 1775, there had been 78 different newspapers printed, 39 of which had been discontinued previous to that time—so that at the commencement of the Revolution there were but 39 papers printed in the U. States—and of the number then printed but eight establishments are now in existence.

In 1810 the whole number of newspapers was three hundred and fifty. There are now about one thousand two hundred newspaper establishments in the United States, from which are issued, at a moderate calculation, 100,000,000 printed sheets annually—which, if in one continuous sheet, would reach four times from pole to pole—and if embodied in a book form, would be equal to issuing six volumes as large as the Bible every minute in the year!

The advancement in newspapers has not only been in numbers but in size. The largest paper published about fifty years since, were of the demi size. In about twenty years, some had increased to the super-royal. Within a few years some have grown to the elephant size—and last month a New York publisher presented the public with a full grown mammoth.

We cannot better illustrate one of the causes of the rapid advancement which has been made within a few years in the various branches of morals, than by drawing aside the curtain and disclosing what the Press is doing in one branch—that of Temperance. We shall look only in one office, that of the Temperance Recorder, in Albany.—Sixty workmen are there constantly employed—six presses are kept in operation by steam, and six by hand power. Those are in constant operation, and every working minute of the year are throwing out twenty copies of some Temperance publication—each one intended to go forth and do its work in the public renovation. It is not surprising that any hydra, either in the moral or political world, upon which the press can be brought to bear is more easily vanquished now than in former times—for the sixty printers employed in the office to which we have just referred, exert a greater influence on the public mind, than sixty thousand scribes with their greatest industry, possibly could have exerted 500 years since.

The office of the Harpers, in New York, gives employment to 140 persons. They print on an average an edition of books of the Family Library size, every day in the year. Their expenses are about three hundred dollars per day.

We do not speak of this establishment as standing forth above every other: we do not know but more extensive ones are in operation in our country. At Brattleborough, in our sister state of Vermont, is one which is deserving notice. The printing establishment of Messrs. Fessendens, keeps in operation seven or eight power presses, printing not far from twenty thousand sheets of paper per day. Connected with the establishment is a paper mill at one end, and a book-bindery at the other, so that (like the chrysalis-changing of a vile caterpillar to a beautiful butterfly,) what enters at one end—the cast-off covering of the human body, is by a regular and rapid process brought out at the other extremity, beautiful paper finely printed and bound—a material for a permanent dress of the immortal mind. So rapid is the process by which paper can be made by the power of steam, that rags have been received at that mill in the morning, manufactured into paper and printed before night! The Comprehensive Commentary is now printing at that establishment. When it is completed, it will have consumed fifteen thousand reams of paper.—Think not that the woollen or the cotton manufacturers are the only ones for whose benefit sheep are raised, or cotton imported; for this one work will use up the amount of a thousand bales of cotton in paper—and will require the skins of sixty thousand sheep for its binding!

The most extensive Printing establishment in England at the present time, is that of the 'Society for the Diffusion of Useful Knowledge.' It gives regular employment to thirty-six type founders, seven men damping paper, and 160 compositors.—Besides 15 common presses, two steam engines are employed in driving 18 printing machines, which can throw off from 700 to 1000 impressions each, per hour. There are in the establishment about one thousand works in stereotype, among which are 75 different sets of plates for the Bible. The first cost of these plates was not far from $1,500,000. The average quantity of paper printed amounts weekly to 2000 reams—equal to half the quantity used in all the twelve hundred newspaper establishments in the United States!

We shall only advert to one more extensive establishment, which is probably the largest in the world, it is the *Royal Printing House at Paris*. It contains a sufficient quantity of types to have standing at the same time 125,000 octavo pages, or 500 volumes of 250 pages each. It consumes about the same quantity of paper annually as the London establishment, and gives employment to three hundred and fifty persons.

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Our own country as yet has not made that advancement in the accumulation of books which has been made in the seat of literature in Europe.—The thirty-one largest libraries in the United States contain together only 250,000 volumes, while the same number of libraries in Germany contain 3,300,000! Look at these vast assemblages for a moment—the growth of four hundred years only! If they continue to increase at the same ratio, to grasp their contents, the age of man will again have to be extended to the antediluvian length, and perhaps after all be drowned in a second deluge from the portentous clouds of literature! We have, however, but little to fear. Literature, like trade, will regulate itself. The wheat will be sifted out, and the chaff thrown to the winds.

As it is only by the deprivation of blessings that we are enabled to estimate their worth, let us for a moment contemplate the extinction of the Press at this time, in our land and throughout the world. Yes—open the flood gates of Vandalism, and with the press and types let every printed work be swept to destruction—but not with them the recollection that they ever existed. Let nothing be found for the reading world but such manuscripts as may be purchased of the scribes, or copied by our hands. Although the arts generally might be practised in perfection, the earth bring forth her fruits in abundance, the blessings of life be richly bestowed—yet the Press silent—we can hardly imagine a greater blank! How many among us would be found able, if willing, to pay five hundred dollars for a Bible—or one hundred for a common octavo—or a ten dollar bill for a school manual! A ten dollar bill? No, we had forgotten ourselves—without the aid of printing, we should have had no bills or banks either! The lawyer would be compelled to study the public laws from the manuscript records of Legislature, or spend the income of years to obtain a copy—not for his library (for none but a prince would presume upon such an extravagance)—but for his strong box, to be watched over and preserved like the miser's gold. Or perhaps when he enters the courts of justice, we should see in his fringed garments, as in Jewish days, the mementos of his legal knowledge. The Divine, instead of having a thousand volumes within his reach for reference, would be far more fortunate than many of his brethren, if the only work he possessed was a whole bible. The physician, deprived of the knowledge he now derives from the world of skilful practitioners of other times, must rely on the oral instructions of his teacher, and make up the rest of his knowledge from his own personal observation and experience. Whatever discoveries he makes in the healing art, will be sure to be his own: for however benevolent his intentions may be, he can find no press to diffuse his discoveries abroad. If a quack invents some pill, which will, as usual, cure every malady, he must be content with taking it himself, if he will venture to, as he will have no opportunity of sending it, like Samson's foxes, scattering fire brands through the land.

With the channels of knowledge closed, men would rapidly verge back to the ignorance of former times. Aristocracy would extend her coveting and domineering hand to the stores of knowledge, and rejoice in being able to keep others in ignorance. Without the press, there would be nothing like the general conveyance of intelligence from one state to another, or from town to town—it could only be from individual to individual. But why talk of State? The system of our government, over so vast an extent of territory, could not be maintained, and the name of State, in its present relations, would soon be heard no more among us. The chain which binds our Union together would be broken—for we are literally bound together by the Press, and the chains strengthened by the jars of opposing parties in politics, produced by its influence:—without this lightening of the cords, our nation might fall into a state of apathy dangerous to its liberties. Without the Press, there could not be a republican system of government maintained over so extensive a territory as the United States—ignorance must unavoidably exist without its enlightening influence—the laws of each State could not be generally understood in